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UNIFORMITY
OF
WORKHOUSE DIETARIES.

REPORT

TO THE

RIGHT HON. GATHORNE HARDY, M.P.,

OF

EDWARD SMITH, Esq., M.D., F.R.S., MEDICAL OFFICER
TO THE POOR LAW BOARD.



LONDON :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
FOR HER MAJESTY'S STATIONERY OFFICE

1867.

WORKHOUSES · 19 cent
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UNIFORMITY OF WORKHOUSE DIETARIES.

Report of Edward Smith, Esq., M.D., F.R.S., Medical
Officer to the Poor Law Board, to the Right
Hon. Gathorne Hardy, M.P.

SIR,

Poor Law Board, Feb 1, 1867.

1. IN my Report on Workhouse Dietaries, which was presented to Parliament last session, I pointed out the very great diversity which exists in the dietaries of the several Union Workhouses in my late district, and there is reason to believe that a similar want of uniformity is met with in every Poor Law district of England and Wales. This extends not only to the various kinds of food which are in ordinary use in different localities, but to the quantity of every kind of food which is supplied, to the composition of such foods as soup and pudding, and thereby to their nutritive values, and also to the frequency with which meat, tea, and similar foods are allowed.

2. This is not unattended with inconvenience, since neighbouring Unions nourish their inmates in a very diverse manner; but it is especially so at the Poor Law Board itself, for the dietaries which are sent up for the sanction of the Board vary greatly in fitness, and are constructed without any regard to general principles or to a common agreement; and hence a large mass of correspondence must be carried on with the Guardians, or the sanction of the Board be rather a formal than a beneficial act.

3. It is, I think, very desirable that some steps toward uniformity in Poor Law dietaries should be taken.

4. I do not, however, propose that a scheme of dietary should be issued by the Poor Law Board for adoption in every part of the country, for that would produce most unequal results. The principle which the Board has long ago sanctioned, viz., that the dietary of the inmates of Workhouses should not exceed in quantity and quality that obtained by labourers out of the Workhouse, is, in the main, sound, and as both the quantity and kind of food obtained by labourers vary in many parts of the country, it follows that instead of one, several schemes would be necessary.

5. But I propose for consideration whether it may not be possible to leave to the Guardians the task of selecting such kinds of food as are commonly eaten in their several localities, and thus give individuality of action, whilst the Board should advise as to

the composition of foods, and as to the quantity of some of the principal foods which should be supplied, and thus in a degree obtain community of action throughout the country.

6. There seems no reason why the composition of gruel, soup, pudding, and pie, for example, should not be the same, or very nearly so, universally, or why, when meat is given, an uniform quantity should not be supplied according to the class of the inmate to be fed. One pint of soup may, and I think should, represent the same amount of nutriment in every Workhouse under the Poor Law administration, and when meat is given it is not the quantity required at a time so much as the frequency with which it is given, that needs to be varied in the different localities.

7. I purpose now to cite the various parts of Workhouse dietaries which should be made uniform.

8. As bread is now the cheapest and best vegetable food, it is desirable that it should be allowed at every meal, and in addition to fresh vegetables at dinner. From 6 ozs. to 7 ozs. should be allowed to an adult at breakfast and supper; and 3 ozs. to 6 ozs. given at dinner, according to the kind and amount of the other food which is then supplied. Women should have 1 oz. less at each meal.

9. As rice is dearer and less nutritious than bread and flour, and is moreover an insipid food, unless prepared with articles which in a Workhouse must be deemed luxuries, and is not generally liked by any class of inmates, its use should be generally discarded. When, however, it is supplied to children, it should be rendered savoury, and be accompanied by bread and butter.

10. Fresh vegetables should be given daily, or not less than 5 times weekly. The quantity of potato need not exceed $\frac{1}{2}$ lb. for an adult.

11. Soup should contain not less than 3 ozs. of raw meat (equal to about 2 ozs. of cooked meat) in a pint, and as too much fluid is injurious, and induces waste, $1\frac{1}{4}$ pint is sufficient for an adult. Six ozs. of bread should be given with it.

12. Soup should not be given more than once a week to any class except to the able-bodied, to whom it may be given twice. Pea soup may be given from October to April, and the peas be supplanted by an equal quantity of Scotch barley during the other months of the year.

13. Three oz. of raw meat (not the offals of animals), 2 oz. of split peas (or 2 oz. barley), with fresh vegetables, herbs, and condiments, and with or without a little oatmeal, and with or without bone liquor or meat liquor, would be a proper formula for soup.

14. When meat is given, 4 oz. of cooked, without bone, is the proper quantity for a man, and 3 oz. for a woman. For children from æt. two to five, $1\frac{1}{2}$ oz.; from five to nine, 2 oz.; and from nine to 16, 3 oz. are sufficient.

15. Meat pie, meat pudding, and scouse, should each contain 3 oz. of uncooked meat in the pound, and that should be the ration for an adult, with 3 to 6 oz. of bread.

16. Suet pudding should contain $1\frac{1}{4}$ oz. or $1\frac{1}{2}$ oz. of suet in the pound of pudding. Flour 7 oz. and suet $1\frac{1}{4}$ oz. will produce 1 lb. of pudding. The ration should be 14 oz. for men and 12 oz. for women.

17. With suet pudding there should also be allowed 3 oz. of bread and $\frac{1}{2}$ oz. of cheese, or 3 oz. of bread and a portion of broth.

18. Suet pudding should not be given to any class, except to the able-bodied and children under æt. nine years, more than once a week, but to them it may be given twice.

19. As cheese is not easily digestible, it should not be given for dinner in the districts where the labourers commonly eat it, more than once a week to the aged, and twice to the able-bodied and children, and should be accompanied by the full quantity of bread, and some broth made of meat liquor and fresh vegetables with barley or oatmeal.

20. Hot food is of much consequence to health, and bread and cheese, when given for breakfast or supper, should frequently be accompanied by hot broth.

21. Tea, with bread, butter, milk, and sugar, should be given night and morning to all well-conducted inmates who are 60 years of age.

22. Gruel should contain $1\frac{1}{2}$ oz. of oatmeal or flour to the pint, and $1\frac{1}{4}$ or $1\frac{1}{2}$ pint should be the ration for an adult.

23. In purchasing meat the contract should include half the total weight of rounds or thick flank, or other superior joint, and be not wholly composed of the clods and stickings. Ox heads and shins are proper for making soup.

24. Roasted or baked meat and also mutton as well as beef should be given at least once a week.

25. Meat should not be pickled or salted generally.

26. The dietary of children should always be very abundant, so as to meet the necessities of growth, and to enable them to become strong men-servants and maid-servants.

27. Bread should at all times, and milk when possible, enter largely into the dietary of children.

28. When bread and butter are given to children there should be a portion of milk, or equal parts of milk and water, and with bread and cheese there should be broth.

29. The following quantities will be fitting for children under nine years of age.

BREAKFAST AND SUPPER.

Æt.	Bread.	Milk or Milk and Water or Gruel or Broth.
2 to 5	4 oz.	$\frac{1}{2}$ pint.
5 to 9	5 oz.	$\frac{3}{4}$ pint.

DINNER.

Æt.	Meat.	(1) Vegetables.	Bread.	(2) Bread and Cheese or Butter.		
2 to 5	1½ oz.	6 oz.	—	4 oz.	½ oz.	¼ oz.
5 to 9	2 oz.	6 oz.	3 oz.	5 oz.	½ oz.	¼ oz. and broth.

(3) Soup and Bread.		(4) Meat Pie or Pudding.	(5) Suet Pudding.
2 to 5	½ pint 2 oz.	6 oz. and 2 oz. bread.	6 oz. and 2 oz. bread.
5 to 9	¾ pint 4 oz.	8 oz. and 3 oz. bread.	8 oz. and 3 oz. bread and broth.

30. Children at two years of age will not, but those between four and five years will, eat the quantity above stated, and if any bread be left from the breakfast it should be given to them between the breakfast and dinner.

31. A knife, fork, and spoon should be supplied to each inmate.

32. Pottery plates, and not tin plates or wooden trenchers should be provided.

33. Trays well covered over with wood or tin should be provided, on which to carry the food from the kitchen.

34. One rather than several dining rooms is desirable.

35. Boiling by steam should be preferred. Meat may be baked in the bread oven. The fire which is required for cooking, washing, and drying might also heat water for use in the different rooms, and warm the wards.

36. I further suggest that it would be useful to append to these remarks that part of my report before mentioned, extending from page 24 to page 64, which, in addition to a discussion on dietaries, gives a scheme of dietary which would be proper for nearly all the midland and some of the northern counties.

I have the honour to be,

Sir, your most obedient servant,

EDWARD SMITH,

Medical Officer to the Poor Law Board.

To the Right Hon. Gathorne Hardy, M.P.,
President of the Poor Law Board.

APPENDIX.

THE PROPER DIETARIES IN WORKHOUSES.

I. PRELIMINARY CONSIDERATIONS.

On proceeding to consider the subject of workhouse dietaries generally, I would premise a fundamental guiding principle—one of rigid utilitarianism—viz., that the inmates of workhouses should be fed in a manner the most consistent with economy and the maintenance of growth, health, and strength. It has always been desired that the arrangements of a workhouse should not be such as would entice able-bodied men to abandon employment and their own homes in order to enter the workhouse, and so far as the well-conducted portion of the community is concerned it has effected its object; but there are ill-conducted persons who are indisposed to earn their own living, and also honest and laborious men who at certain periods are unable to earn their living, to whom any place of shelter with warmth and food would offer inducements to them to enter, and between whom and the principle laid down there is a degree of antagonism.

Preliminary
considerations.

There can be no doubt, however, that the object for which workhouses have been established is more fully attained now than it has been at any former period. Able-bodied people are now scarcely at all found in them during the greater part of the year (only in winter when labour for the working classes is deficient is there any considerable number of this class); and so much is this the case that the officers can scarcely find enough inmates to keep the house and linen clean. At present those who enjoy the advantages of these institutions are almost solely such as may fittingly receive them, viz., the aged and infirm, the destitute sick, and children. Workhouses are now asylums and infirmaries, and not places where work is necessarily exacted in return for food, clothing, and shelter; and so generally is this appreciated, that the very term "workhouse" has fallen into disuse, and the word "union" has been familiarly substituted for it. This has resulted probably from the general prosperity of the country in recent years, by which labour, and a fair remuneration for it, have been more uniformly obtained, and the improved moral tone and greater thrift of the population generally; and although some of these causes cannot be permanent, there is some reason to hope that workhouses will not be again filled with the class of persons whom it is desirable to exclude.

Whilst, therefore, there is now as strong a necessity as formerly for laying down the principle of rigid economy in the dietaries, as in the general management of workhouses, there is much less reason than heretofore to fear that the comforts which such institutions, when managed under the control of the State, must necessarily afford will be abused.

I have already limited the extent to which economy in the dietary may be carried by the physical requirements of the persons to be fed, since humanity as imperatively requires that the health and strength of those whom the State thus undertakes to protect shall be maintained to a fair standard, as that a sense of justice and propriety demands that nothing superfluous shall be provided, and that nothing shall be wasted. It is not, therefore, simply a duty to find that amount of food which has the cheapest

market value, and that quantity which will just sustain life, but that kind of food which will yield the largest amount of nourishment at the least cost; those conditions which will enable the food to be the most perfectly digested, and the body to obtain the greatest possible amount of nourishment from it, and that amount which shall maintain growth, health, and strength.

In these respects, whilst the aim is to promote economy, errors are committed which produce waste of food. Such are the selection of foods of inferior quality, or of inferior digestibility; placing the persons to be fed under conditions which do not enable them to extract the largest possible amount of nutriment from the food, but allow much nutritive matter to pass out of the body unused; and offering foods so distasteful that they are not eaten, but are thrown into the waste-tub. Regarding economy in this light, it may be approved equally by justice and by humanity—by utilitarians and by humanitarians.

I purpose now, before stating the dietaries which should, in my judgment, be generally in use in workhouses, to premise certain observations of this class, with a view to enable guardians and others to understand the grounds upon which the dietaries will be based, and, as it is hoped, to obtain their general concurrence. I shall, therefore, consider in their order, 1st, the conditions in which the inmates should be placed to make the best use of the food supplied; 2nd, the selection of the most economical foods and parts of foods; and 3rd, the special requirements of each class of inmates.

*The Conditions in which the Inmates should be placed to enable them to make the best Use of the Food supplied.**

Requisite conditions for the perfect use of food.

The idea which I desire to convey by the phrase “the best use of food” is the most perfect digestion of food and the appropriation of it to the sustentation of the body, by which the least possible portion passes out of the body undigested and wasted. When this is effected, food completely fulfils the purpose for which it was eaten.

It should be generally known that the power of the body to obtain nourishment from food varies very much, quite apart from the nutritive properties of the food itself, and also that the various causes which modify the health and vigour of the body act chiefly by modifying this power to take and convert food to its use. Whatever influences, in general terms, improve the general tone of health, increase this power, and *vice versâ*, and many of them are well known to almost every member of the community.

Employment.

Employment.

The most readily recognized influence is that of exertion, since it is well known to quicken the appetite and digestion, and every other vital action. Employment in the open air, as in the garden and field, is most useful, and should be found systematically for all, even for boys and aged men, where practicable. Stone-breaking, for the purpose in hand, is nearly as valuable, but is inferior in other respects. Such in-door employments as oakum-picking and mat-making, requiring less exertion and being accompanied by dust, are less to be desired, but they are almost the only available occupations in large towns, habitually, and in the country during wet and cold weather. Pumping and grinding of corn are wholly or partially in-door occupations, and are injurious only when too laborious and too long continued. Chopping firewood is a good and profitable employment.

* The remarks which follow under this head might also with equal force be urged on other grounds than those of dietary.

The plan of allowing the inmates to saunter about their day-rooms, or small yards enclosed by high walls, without any occupation, and to pass their days in a state of listlessness of mind and body, is even in this point of view most unfitting. Every inmate, according to his measure of health and strength, should have almost constant occupation, and when that fails, he should be permitted and directed to take exercise by walking in or outside the workhouse grounds.

Cheerfulness.

The state of the spirits is also of some importance, since with a state of depression the appetite and all vital functions languish. There is no reason why children and the destitute aged should not enjoy life even in a workhouse; and it is quite fitting that by mental instruction, reading, and religious exercises, by reasonable permission to take exercise in the garden, field, and neighbourhood, or in the workhouse yards (which should be kept fairly smooth and dry, and enlivened by grass-plots or flower-beds), in addition to some regular occupation, they should enjoy a sense of resignation, and a state even of cheerfulness. None have seemed to me so cheerful as those who have been induced to take interest in the management of the workhouse by being engaged in the care of the sick, or of vagrants, or in discharging various other duties of trust and usefulness. Mopishness, which is engendered by confinement within high walls, and without regular occupation, and neglect or harshness on the part of the officials, is to be deprecated. Many of the existing workhouses are admirably situated in reference to the surrounding country, and the guardians have a sufficient quantity of land to enable them to fulfil every requirement.

Cheerfulness.

Warmth.

A suitable amount of clothing and firing is of great importance to all, and especially to the young and the old, in order to enable them to sustain vital action, for although cold weather may excite the appetite and promote digestion, continued coldness of the body tends to exhaustion, and in children retards growth. In this respect I think there is need of improvement in many workhouses, and that in reference to both the day and the night.

Warmth.

Agreeable and usual Food.

There can be little doubt that likes and dislikes for food have great influence over its action. It is not denied that repulsive food lessens or takes away the appetite, and according to its repulsiveness it is eaten or left. It is, therefore, an obvious error to give soup or any other kind of food, probably good enough in itself, to one who positively repels it, since it will not be allowed to nourish him, and will be carried away to waste. Everyone has tastes which must in some degree be gratified, or the appetite will fail, and on so small a matter apparently as the admixture of dried herbs with soup, of spice with rice-milk, and of dip with suet-pudding, will depend the capability of taking these foods regularly. It is true wisdom to provide such foods as are not disagreeable, and to prepare them in an agreeable manner. Even the inmates of a workhouse may properly claim this amount of consideration; and, indeed, it is only that which we give to the lower animals under our care.

Agreeable food.

For the same reason a certain variation in diet is really necessary—such an one as the ordinary experience of mankind has induced those to provide who are free to select their own food,—and that not simply to please the palate, but—more important still—to maintain the relish for and the capability to eat the food.

Usual food.

Unusual
food.

So with regard to unusual food. It is possible to provide food which may be highly nutritive in itself and acceptable to some, whilst to others not accustomed to its use it would be unsavoury and repulsive. Indian corn is an apt illustration of this since it is more nutritive than wheat, and is eaten by the inhabitants of a large part of both the old and new worlds, but its flavour is repulsive to the inhabitants of these islands, and except as the result of dire necessity it would not be accepted by them. It was largely introduced into Ireland after the late famine, and rendered the greatest service to the starving inhabitants ; but even so recently as 1863, when I visited it under the direction of the Privy Council, it was extremely disliked there, and was tolerated only by reason of the extreme poverty of the people. Peas and beans in like manner have a flavour which prevents their daily use here, whilst in Italy beans (of good quality, however,) are eaten freely.

It is possible for a person by the use of such foods to lose much of his dislike to them ; but this only occurs after the lapse of some time. Many, however, never lose the distaste for them.

The foregoing has reference chiefly to the appetite for and the taking of food, but there is great reason to believe that the digestion or assimilation of a distasteful food is not as perfect as that of an agreeable food, and that if it pass the palate an unusually large portion of it will remain in and then pass out of the bowel unused. Hence it is sound economy to give agreeable, ordinary, and varied food.

Cooking.

Cooking,
object of.

The object in cooking is not to change the composition of the food, but to make it more agreeable to the taste, and to aid the process of mastication and digestion by rendering the food soft, and its parts capable of being easily separated. The first is the higher department of the art, and upon it much skill may be exercised, yet a very moderate amount of knowledge would enable anyone to employ the herbs and condiments in common use so as to add to the flavour of the food. There is great deficiency in practice in this respect. There are, also, two errors which are often committed, one by which meat, for example, is over roasted and its valuable juices dried out ; the other by which it is boiled too fast and the fibre rendered harder than before. Whatever may be the kind of food and the mode of cooking, the operation should end when the food has been sufficiently softened, and before any material part of its flavour has been drawn out of it.

Roasting
meat.

In roasting meat the fire should be hot at first, and the meat placed so near to it for a few minutes that the outside may be quickly hardened, and the juices not allowed to escape, and afterwards it should be cooked slowly. When meat is baked this graduation of the heat cannot be effected, and a larger proportion of the juices and flavours of the meat escapes and is lost. This chiefly accounts for the inferior flavour of baked and the superior flavour of roasted meat. When meat is properly roasted there is but little nutriment lost, except water and a portion of fat which has been melted, and is recovered as dripping ; and hence, although the weight is reduced by one-fourth or one-third, the nutritive value of the lesser quantity with the dripping is scarcely less than that of a larger quantity.

Boiling
meat.

In boiling meat the process must be varied according to the object sought. If it be desired to make soup or broth from it, and to make it good, it will be needful to cook the meat slowly from the beginning, and thus extract as much of the juices as possible ; but if the making of soup be a secondary matter, and the aim is to render the meat itself as nutri-

tious as possible, the meat should be plunged for a few minutes into boiling water, so as to quickly harden the outside fibre, and then the heat should be lessened, and the meat be slowly cooked. It is not possible to have good soup and perfect meat at the same time.

But boiled meat differs materially from roasted meat in that, by the extraction of a portion of its juices, it has lost salts which are *necessary*, and other material which is useful to the body; and the reduced quantity after cooking is not equal in nutritive value to the original quantity. This defect is, however, easily remedied, for the lost material is found in the broth, and if both be eaten together the original nutritive value of the meat is regained. When, however, the meat is eaten on one day and the broth on another, the body does not obtain the required quantity of the salts, and in order to proper nourishment it must obtain them on the meat days from other food. The importance of this is not generally understood; neither is it readily believed that salts weighing only a few grains can have much value; but those few grains of salts are as essential to nutrition as the ounces or pounds of flesh in which they are naturally found. The loss of weight by boiling is somewhat less than that by roasting meat, and usually about $3\frac{1}{2}$ oz. of roasted meat are equal in nutritive value to 4 oz. of boiled meat with broth added.

Differences
in value of
roasted and
boiled meat.

Salting, although used for the preservation of the meat, is a part of cookery, and requires consideration here. The effect of salt is to extract a portion of the juices (with the salts and other substances) from the meat, and the pickle soon assumes both the flavour and colour of the meat pickled. Hence its value is lessened, and, unlike the result of boiling meat, the salts and albumen are irrevocably lost. No folly then can be greater than that which requires meat to be salted which could have been kept fit for use without salt. In this manner there is much waste of food in most of our workhouses, and a proportionate injury inflicted upon their inmates. But further, salted food when given regularly has been proved to be injurious to nutrition, so that not only does the salted meat lack important parts of food, but the salt which is thus introduced within the system tends further to impoverish the body.

Effect of
salting
meat.

This evil is not restricted to the meat. The liquor in which it is boiled must be made into broth or soup, and although much of the salt is extracted from the meat by the boiling, it is collected and eaten in the soup.

Meat
liquor.

The use of a small portion of salt adds somewhat to the flavour of beef and pork, without materially lessening the value of the flesh; but the rule should be universally laid down that meat shall be generally given when fresh, and shall not be generally salted except under special circumstances. Meat can be obtained in country places only once a week, and as in hot weather it cannot be kept fresh for a whole week, a certain portion must be salted, but even under these circumstances if a larder be provided which is cool and has a free current of air passing through it, if the meat be of good quality and placed in the larder *when quite fresh*, more than half of the week's supply may under almost all circumstances be eaten when fresh. In towns the meat may be obtained, if properly agreed upon in the contract, more frequently than once a week, and there is no excuse for wasting it by pickle.

Meat to be
given when
fresh.

Hence on grounds of economy and variety of flavour, it is desirable that in every workhouse, and at all seasons of the year, the meat should be sometimes roasted and at others boiled; the relative frequency depending upon the frequency with which the liquor is to be used for soup or broth and the convenience for roasting. There is no reason why at least one roast weekly should not be given (and Sunday would probably be a proper day for it), but the aim should be to give it twice weekly. When bread is baked in the workhouse (as is usually the case) the oven is quite

and some-
times
roasted.

adapted to the baking of meat, and the process would not be attended with more trouble than occurs with boiling; and when this is not the case, sufficient meat for the use of a small or moderate-sized workhouse may be roasted in the small ovens and at the fire. There would not, however, in any case be more difficulty in providing proper means for roasting or baking than for boiling meat.

Meat in
soup.

When cooking meat in soup, it is desirable that it be cooked slowly and not rendered hard; but at the same time it should not be cooked so long as to fall to pieces and be imperceptible by the inmates. Hence it should not be added to the soup at the commencement of the process. When cooked in pies it will necessarily be rendered tender if the meat be of good quality, and the moisture of the pie duly maintained.

Bones.

All the bones, even those in roasted meat, at the command of the cook should be made into soup. They should be broken or sawn into very small portions, and boiled in an open vessel, or, better, in a closed digester, for at least twelve hours.

Bread.

Bread should be well baked, and yet have but little dried crust. If there is much moisture in the inside of the loaf the digestibility of the bread will be lessened and the bread will soon become ropy or mouldy. All preparations of boiled flour should also be well cooked.

Potatoes.

Potatoes should be sometimes roasted, and at others boiled. Roasted potatoes have lost much more in weight than boiled potatoes, but the loss has been almost exclusively of water, and the lesser weight of the roasted is equal in nutriment to the greater weight of the boiled potato. When, however, the skin has been dried and thickened, there has been a certain amount of food lost. Roasted potatoes have a flavour which differs from that of boiled, and they retain the heat longer and can be handled more freely than boiled potatoes.

Peas.

Peas should be so cooked that they may become quite soft, but not so that the whole shall be broken down. There is a wish on the part of many of the inmates of workhouses to be able to recognize in the food the materials of which it is composed, and if this can be effected and yet the materials be perfectly cooked, it is desirable to gratify the wish. Great care should be taken, however, that the peas are sufficiently cooked, for any hard portions will be indigestible.

Milk, &c.

Milk should not be boiled, but simply made hot. Tea should not be boiled, but placed in boiling water, and the water kept quite hot for about ten or fifteen minutes. Carbonate of soda should be added to the water (and particularly if the water is hard). The tea should either be thrown loose into the boiling water, and the whole occasionally stirred, or it should be enclosed in very coarse muslin or strainering, with plenty of space allowed in the bag, and be well moved about, and at the end of the operation the bag should be well squeezed. As the quantity of tea allowed is small, a better infusion will be obtained if the leaves are thrown in loosely than if enclosed in a bag, and after they have been stirred round they will for the most part fall to the bottom of the vessel, and not inconvenience the distribution of the tea. The sugar should not be boiled in the tea, as it loses a part of its sweetening properties when kept at a boiling temperature, but added after the boiling has ceased.

Rapid Distribution.

Distribu-
tion of food.

It is of great importance to nutrition that the food be served and eaten whilst hot. The heat of the food stimulates the mouth and stomach, so that improved relish for and digestion of food occurs. Further, heat is essential to the body, and it is *cheaper* to supply a part of it from without in this manner than to produce it within by the chemical changes of digestion. In this sense heat is a kind of food. Lukewarm food not only lacks these advantages, but some kinds, as soup containing fat, become positively repulsive, and are left to be wasted.

In order to provide hot food, it is needful that it be prepared hot, that the distribution of food be rapidly effected, and that reasonable means be taken to prevent rapid cooling.

The first may be and indeed usually is effected without difficulty. The second, or the rapid distribution of food, is attended with some difficulty, since the dining-room, and particularly the sick wards, are distant from the kitchen, and the weighing of food for a large number of persons necessarily consumes much time. The kind of precaution to prevent the food from becoming cool is even yet more difficult. The food is usually cut up and weighed in a large and comparatively cold room; the dining-room is cold, and the doors are necessarily open, and a considerable time must elapse between the first and last acts of distribution of the food. It is served on open plates which allow the action of the cold air on every side, or in tin pannikins, which rapidly radiate and lose heat. Moreover, the whole supply of food is placed upon the table before any of the inmates are admitted to the dining-room.

The degree of difficulty in supplying hot food varies necessarily with the season of the year, the size of the workhouse, and the excellence of the arrangements; but, upon the whole, further improvement is needed and may be readily effected. To this end it is necessary—

1. That the master and matron should be well impressed with the great importance of supplying hot food.
2. Sufficient help in the distribution should be obtained, and the carrying parties be well arranged.
3. A rapid carver should be selected. In some workhouses the master is neither young nor active, and he might with advantage delegate a part of his duty to another, who shall perform it in his presence.
4. It is worthy of consideration whether fluid foods, as soup and tea, could not be carried into the dining-room in several large quantities and distributed upon the table. This is under consideration in several workhouses, and will, I trust, ultimately be found practicable. It would give the table a more homely character, and allow the food to be served when quite hot.
5. Pottery should universally supplant tin plates and pannikins. Wooden trenchers, which are still in use in many workhouses, are in this sense preferable to either, but they are objectionable in other ways and should now be disused. Pottery plates are commonly used, and in one or two workhouses pot-mugs have been substituted for tin pannikins, and the fears in reference to breakage have not been realized. The habit of eating food from tin pannikins in ordinary life has long passed away, and, in order to lessen that sense of degradation which it is not desirable that aged inmates should feel, as well as to prevent the cooling of the food, it is to be hoped that pot-basins or mugs will ere long be in general use.
6. The trays upon which the portions of food are carried to the dining-room and the sick wards should be covered. This would be most easily effected by having thin wooden covers to fit the tray, and cover the whole contents, and the additional weight would be small.
7. There is probably no sufficient reason why the inmates should not be assembled in their places before the food is placed upon the table, since the distribution of the food might be made without inconvenience or confusion. The extra diets (which are only a very small minority) might be brought in separately.

II. SELECTION OF THE MOST ECONOMICAL KINDS, QUALITIES, AND PARTS OF FOOD.

The most economical foods.

This is, perhaps, the most important part of the subject, since it affords grounds for the construction of workhouse dietaries of equal force to the scientific and the practical man.

The principle which must guide us is to seek to obtain the largest amount of nourishment at the least cost, and it therefore claims all the knowledge and intelligence of those who apply it in practice.

It is not, however, as simple as it may at first sight appear. It is not simply the least cost of food, for foods which are cheap are for the most part inferior in real value to those which are dearer. Neither is it simply cheapness combined with nutritive elements, for the nutritive elements vary greatly in digestibility, and the more digestible are cheaper at a greater cost than the less digestible at a less cost. Moreover, as has been shown, nutritive foods may be distasteful, and even repulsive, to the persons to whom they are offered, and then they are rejected by the appetite, or less perfectly digested, and some of the nutritive material does not nourish, but is wasted.

Qualities required.

It is, therefore, a combination of four qualities, viz., low monetary value, high nutritive material, acceptability to the appetite, and digestibility. It is not simply how much material it offers at a given price, but how much nourishment the body can obtain from it at that price.

There must, therefore, be a reference to these four qualities in the account which I shall give of each separate food, viz. :—

1. The market value of the food.
2. The nutritive elements, as determined by chemical analysis, contained in the food.
3. A knowledge of the kind of food in ordinary use amongst the classes to be fed by these dietaries.
4. A knowledge of the working of the human system by experiment or otherwise of the degree in which different kinds of food are digested.

Nutritive elements.

In reference to the second, there are two modes in which the nutritive elements are stated; one showing how much of some well-known elements of food—as fat, sugar, and starch—they contain; the other stating the final elements into which all these are resolved by the acts of digestion and assimilation. The former is the more popular one, and is, perhaps, sufficient when we wish merely to compare foods with each other in a general manner; but the latter is the more useful, since fat and sugar, and all other foods, are resolved into their final elements by the acts of digestion and assimilation, and leave the body in those forms.

Modes of calculation.

Accepting the latter as the plan to be pursued in calculating the nutritive elements in food, I remark that these elements are arranged chemically into two classes, viz., certain salts, as those of potash, soda, and iron, which—however their combinations may change—must still remain and leave the body as salts of potash, soda, iron, &c.; and four substances which are contained in and are evolved from the decomposition of the food, viz., carbon, nitrogen, oxygen, and hydrogen, and which, with the exception of nitrogen, for the most part leave the body as gases or vapours.

Salts.

The salts are in small quantities, but are widely distributed in foods, and although small in quantity, are quite essential to nutrition, whilst the other four elements form the great bulk of foods, and of the body which is nourished by foods.

Practically speaking, but little calculation need be made of the salts in food, provided a mixed animal and vegetable diet is given; for whilst

it is not known with great nicety how much of these salts is needful to nutrition, it has been proved that in a mixed dietary they are sufficiently abundant.

Of the other elements, the oxygen and hydrogen are chiefly found combined as water, and as we can supply water from without in any required quantity, we need not take into account the water which is combined with food. There, are, however, certain foods in which the hydrogen is found in greater quantity than could be united with the oxygen to form water, and which, consequently, is free, and can take a part in those chemical actions by which food nourishes the body. This must be taken into account, and it is chiefly found in fats. Oxygen and hydrogen.

Hence, practically, there are but two substances which we are required to estimate in order to learn the absolute and relative nutritive values of food—the carbon and the nitrogen; and we can also include the free hydrogen, since in its property of producing heat it is equal to $2\frac{1}{2}$ times its weight of carbon, and may, therefore, be reckoned under the head of carbon. The distinctive character of these two substances is, that carbon, which is used in large quantities, gives heat to the body; whilst nitrogen, which is consumed in small quantities, is an essential part of all kinds of flesh. These supply the two great wants of the body, viz., to keep it warm and to maintain its structure. It is needful only to add further that there are foods—as fat, oil, sugar, and starch—which do not contain any nitrogen, and which, therefore, cannot be used to produce flesh. These are called *carbonaceous* foods, and also *heat-giving* foods, because their duty is to give heat to the body. There are not any foods which are destitute of carbon, and consist of nitrogen only, but there are many foods—as lean flesh, eggs, and milk, which contain nitrogen, and are thence called *nitrogenous*, and their duty is to *build up the structures* of, as well as to supply heat to, the body. Carbon and nitrogen.

In calculating the quantity of these two elements in foods, we may adopt one of two courses, viz., *first*, to state the quantity of the substance containing nitrogen, and the quantity containing no nitrogen; and this plan is still used by many eminent men. Or, *second*, to ascertain the quantity of nitrogen itself in the substance containing nitrogen, and the quantity of carbon in all substances, whether containing nitrogen or not, and then at once to take the weight of nitrogen and carbon in a given food. The latter is the more simple, since the carbon in the nitrogenous food must also be calculated, and the sole object in determining the amount of nitrogenous food is to know how much nitrogen it affords. The former also leaves the calculation incomplete. Both, however, when fully calculated, necessarily yield the same results. Modes of calculation.

There are many who, notwithstanding this chemical knowledge, doubt the facts and the inferences deduced from them, and would take as the test of the value of a food the complicated and ultimate one of its effect in maintaining the health. A given quantity of food, they say, has been shown to be sufficient to maintain health and strength, and they do not believe in carbon and nitrogen or any such chemical details. Their mode they call experience, and the other mode theory; whereas the former is blind, and the latter enlightened experience. Such persons are familiar with different qualities of food in feeding animals. They know that oats are more sustaining food than grass, and beans than oats. Also that turnips and cabbage are inferior in fattening properties to oil-cake and barley-meal. All that they further need is to know the reason for this, viz., the difference in their chemical elements; but they admit and act upon the fact which they have seen and known, and reject the explanation which they do not Answers to objections.

know. It must be evident that if in a gross manner they can determine the different values of foods in producing certain effects, it is the department of special science to furnish the explanation, and to state the values with greater exactness.

Foods in
ordinary
use.

Reports to
the Privy
Council.

Digesti-
bility of
foods.

In reference to the third requirement, or the knowledge of the foods in ordinary use in different parts of the country, I will here refer only to my report on the dietary of low-fed populations, which is published in the sixth report of the medical officer of the Privy Council, in which report will be found the actual dietaries in use in every county in England and in Wales, Scotland, and Ireland. The subject will be again considered further on.

The fourth, or a knowledge of the digestibility of different kinds of foods, must be derived not from the well-known observations upon a man who had an artificial opening into his stomach, through which food could be introduced and withdrawn—since those only showed the rapidity of the process—but from such as show what proportion of a given food passes off by the bowel unused, and therefore what proportion is applied to the nourishment of the body, and what is cast out as useless. This inquiry is still incomplete, but in general terms it may be stated that a larger proportion of animal than of vegetable food is digested, and of vegetable food a vastly larger proportion of the farina than of the skin or husk. In reference to the latter, it may be further added that the outer part of the husk of grain—as wheat, oats, and barley, and of seeds, as peas—is altogether indigestible, and is found in the excrements in the state in which it was introduced into the body. This husk, as, indeed, sawdust also, contains a larger proportion of nitrogen than the farina of wheat, and therefore has erroneously been stated to be highly nutritive, and is a good illustration of the fact that the value of different foods cannot be taken upon their chemical qualities alone.

I now proceed to discuss the qualities of different foods, and shall consider, firstly, vegetable ; and, secondly, animal foods.

1st—Vegetable Foods.

Qualities of
foods.
Vegetable
foods.

Nearly all vegetable foods contain three principal elements, viz., starch and oil (carbonaceous), nitrogen, and salts, and their relative values depend upon the amount of these several substances. Grain and seeds of all kinds are far more nutritive than roots and leaves, but they cannot be used as food exclusively, since the latter contain juices which tend to prevent cutaneous diseases and scurvy.

Wheaten Flour.

Wheaten
flour why
now in more
general use
than for-
merly.

Of all grains wheat is the most useful and economical for workhouse dietaries. In this respect great changes have occurred during the present century by the reduction in the price of wheat in relation to that of other grains, and by the practical disuse of grains which under other circumstances were much cheaper than wheat.

Barley, rye, and oats, were the grains in universal use amongst labourers at the end of the last and the early part of the present century, but now the use of wheaten flour is as universal. In certain parts of Scotland and South Wales, and in the south of England, barley is still used by a small proportion of the people ; but it is usually mixed with a proportion of wheaten flour. Rye is still grown in Yorkshire and the northern counties in the same field with wheat, or the two grains are

mixed and grown together, and called *mastin* and made into bread. It is also used in certain parts of the south-west of England when mixed with wheaten flour, and in many other parts it is added to adulterate brown wheaten bread, or to keep it moist. Oats are still used as food for man in certain parts of Scotland, in the Peak of Derbyshire, and in the north of England. Sometimes the oatmeal is mixed with wheaten flour in making bread, but more commonly it is used alone, and made into thin cakes.

Wheaten flour.

The reasons for this change are sound. Barley and rye, although even now cheaper—and they were relatively much more so at the period referred to—are inferior in nutritive quality and contain a much larger amount of indigestible matter than wheat. Formerly the difference in cost was far greater than the difference in nutritive value, and then they were cheaper foods; now the difference of cost is so little, whilst that in nutriment remains as before, that they would probably be even dearer than wheat. Oatmeal was also of less monetary value than wheat, and was the cheaper food. It was also said, as indeed it is still affirmed by some chemists, that it was more nutritious than wheat, and on that ground it was again accounted the cheaper food. For some years past, however, the cost of oatmeal has been greater than that of wheaten flour, and the supposed increased nutritive value of the former has been found to be chiefly in the indigestible husk; and hence there are now two good reasons why oatmeal has become dearer than wheat flour.

There are also other reasons for this change which are of a secondary but yet important character. The flavour of wheaten flour is softer and more agreeable than that of other grains, and is liked by children, women, and men, alike. Bread made from wheaten flour may be agreeably eaten without butter, cheese, or other savoury food, whilst bread made from the other grains can scarcely be eaten alone by young children, and is repelled by women, and even by men. The amount of refuse and indigestible matter is less in wheat than in the other grains, and hence wheaten flour is more readily digested by the old and the sick, and by all whose powers of digestion are feeble. For the same reason it does not act injuriously upon the bowels, whilst all other grains tend to cause purging in young children and females, and in the sick and feeble, and thus carry food from the bowels, which, if allowed to remain, would have been digested and used to the nourishment of the system. Its use thus prevents disease and waste.

Hence there are very good grounds for the use of wheaten flour as the chief vegetable food in our workhouses, and there are equally good grounds for the selection of the quality known as “seconds.”

Seconds flour.

When wheat is ground, the whole may be made into flour, or by passing it over “silks” of various kinds, the bran, the coarse and fine pollards, and the sharps, may be removed, and only the farina of the wheat remain. The former is called brown or batch flour, or wheatmeal, and the latter fine biscuit flour, and between these qualities are others known as “thirds” or “seconds,” according to the quantity of “sharps” remaining in the flour. The bran, pollards, and sharps, are all derived from the husk of the wheat; but it is the bran and part of the pollards only which have been proved to be indigestible, whilst there is reason to believe that the sharps are more or less perfectly digested and aid nutrition.

Different qualities of flour.

There has been as great a change in the habits of the people in our day in reference to the use of the so-called qualities of flour, as in reference to the use of other grains than wheat. Brown flour was sold at a lower price than the other qualities of flour until the last few years, the difference being at least twopence per stone between brown and seconds, and four-

Change in the habits of the people.

pence per stone between brown and fine flour; and brown flour was very generally used as a matter of economy. Now the price of brown flour is as high as that of households, and even of fine flour; nay, in certain large towns it is regarded by the bakers as a luxury for the rich, and a fancy price is charged for the bread. The labouring classes have almost universally discarded it, and there seems a tendency to carry this so far as to exclude all but fine flour.

Bran.

The explanation of this is similar to that already given in reference to other grains. Experience has shown that the bran is a kind of husk which does not nourish, and that as brown bread is less agreeable to the palate than white bread, butter, cheese, or other savoury food must be eaten with it. Moreover, brown bread is very apt to produce diarrhœa in children and feeble persons, and thus become an expensive and probably an injurious food. However agreeable, therefore, brown flour may be in change with white, and however valuable its laxative quality may be to those who eat more food than is required, or who need the daily use of an aperient, the universal experience of the poor has proved that it is not so desirable as white flour for their use. Hence, when its price was less than that of white flour, it is doubtful whether there was economy in its use; but now that it is not less, but probably greater, it is manifest that to use it in workhouses would be to waste funds.

Finest flour.

There is some doubt as to the true economical value of the other kinds of flour. If the quantity of bread which can be made from a given weight of flour be taken as our guide, the finest flours must have the preference, because the fine quality of wheat from which they are always made, the admixture of southern wheat and the exclusion of all but the farina of the wheat, enable them to absorb and retain much water, and thus to increase in weight greatly. This quality, in addition to the very agreeable flavour of fine flour, now induces the wives of working men to prefer it even at the higher price which must be paid for it. On the other hand, the sharps which are found in seconds and thirds flour are richer in nitrogen than the farina, and have therefore in one direction an advantage in nutrition. This, conjoined with the lower price paid for those varieties of flour, render the seconds a more economical food than the finest flour. There is more difficulty in arriving at the true value of "thirds," on account of the large but uncertain quantity of sharps present in it; and it is a quality which is open to much adulteration. On the whole I feel assured that the experience of the poor in this matter is based upon a good foundation, and that in our workhouses, as in the houses of the poor, the most economical quality of flour is good seconds.

Thirds flour.

Review.

On a review of this subject I arrive at the conclusion that wheaten seconds flour should be universally adopted for the food of paupers, whether in or out door, and considering its high nutritive value with its present low price, it is true economy to allow it to form a very important part of out-door relief, and of workhouse dietary. The admixture of rye should only be allowed in the districts where it is still a part of the labourer's ordinary food, and care should be taken that the price of the mixture of rye and wheat should be regulated accordingly.

Adulteration.

The adulterations of flour, against which precautions should be taken are as follows: 1st, too large an admixture of sharps whereby seconds is rendered thirds. The colour of the flour and of the bread is the ready test, but to render it perfect much experience is necessary. When a small quantity of flour has been well mixed with cold water and strained through very fine muslin, the sharps are left upon the strainer, and may be detected by the eye or by the aid of a good magnifier. The sharps may be distinguished from the farina in a dry state by the aid of the microscope.

2nd, the addition of rye or barley. The colour is also used here as the test, but probably the best test to those who are well acquainted with the flavour of rye is the taste, and by it this adulteration may be detected in flour of even moderately good colour. 3rd, the addition of sweepings, dust, and other mineral substances. This is detected by dissolving and straining a portion of the flour in the manner just mentioned, and the use of the magnifier. 4th, the most usual one, is the admixture of inferior wheat, or wheat which is not sound, and then the quality of the bread and pudding is the only test.

When oatmeal is mixed with husks, dirt, and very fine sand, the washing test should be used. When this occurs to any considerable extent, the weight on the hand is a good guide to further inquiry. When mixed with barley and rye the detection by the flavour is difficult.

In all these cases the use of the microscope is the readiest course, since the different forms of the starch cell indicate the kind of grain, and the crystalline characters would point out mineral dust and sand. The knowledge required for its use might be readily obtained from or by the medical officer.

Bread.

There is some difference of opinion as to the economy of baking or of buying bread in the different workhouses. Fourteen pounds of seconds flour should produce $19\frac{1}{2}$ pounds of bread, and it is, therefore, very easy to ascertain whether the additional $4\frac{1}{2}$ pounds of bread will not more than pay for yeast and firing. It cannot be doubted, I think, that it is more economical to bake the bread than to buy it, and particularly in the smaller workhouses where the labour employed is that of the inmates themselves, and is not specially paid for; and when it is considered how large is the quantity of bread which is consumed during the year, the economy will be seen to be very considerable. There are also other advantages, viz., 1st, when the bread is baked for out-door relief, also, the saving is further increased; 2nd, the effect of the addition of alum and other substances commonly made by bakers with a view to enable the flour to absorb a larger quantity of water, and to give the bread a whiter colour, is avoided; 3rd, the quality may be maintained at a more uniform standard.

When, however, the bread is bought, there are three circumstances which should be noticed in addition to the weight of the bread, viz., 1st, to ascertain if alum has been used. The taste is a ready test if sufficiently cultivated; but the most certain way is to apply the test for alum; 2nd, to notice the degree in which it is baked. As the bread is sold by weight it is the interest of the baker to add as much water as possible to the flour, and to leave as much as possible in the bread; 3rd, to have it delivered on the day after it has been baked. Bread dries rapidly during the day on which it is baked, and it is to the interest of the baker to have it weighed as soon as possible after it has left the oven.

But both on the ground of economy, and to supply the paupers with the cheapest and best food, I strongly urge that the bread be baked in the workhouse, both for the use of the inmates and for out-door relief.

Indian Corn.

It is scarcely needful to refer to Indian corn or maize, since it is not the ordinary food of any labourers in England, and as it would not be acceptable to them its use could not be enforced with propriety. It is,

Bread baked
or bought.

Tests of
value of
bought
bread.

Should be
baked.

Maize.

however, a highly nutritive substance—more so even than wheat. But its use, even if allowed, would not be convenient, since it cannot be made into loaves, but must be baked daily in thin cakes, or eaten as stirabout, or hasty pudding, with milk, or sugar, or butter, or some kind of sauce. Hence, with wheaten flour at its present price, and with the great convenience of making flour into loaves, there is no probability of maize, although the cheaper food, being introduced into workhouse dietaries.

Peas.

Peas. Of all other kinds of dried seeds peas must occupy the first place. They are, indeed, far higher than wheaten flour or oatmeal in nutritive elements, and when perfectly cooked are scarcely inferior in digestibility; but their continued use as a large part of the dietary could not be borne by men without leading to disease, and particularly to skin disease. The same fact has been commonly observed when beans have been given to horses as their ordinary daily food. Their flavour, however, necessarily limits their use, for it is harsh and peculiar, and experience has shown that no people, whatever their poverty, are willing to eat them constantly. Hence they are fitter to be adjuncts to a dietary rather than an important part of it, and with wheaten flour abundant and cheap, this is the less to be regretted. They are more readily eaten in the winter than in the summer season, and may then be used twice a week with advantage; but in the hot season their flavour is more repulsive, and the necessity for their use less. At present their sole use in workhouses is in the preparation of soup, but in the winter season they could be prepared alone as vegetables with meat, and particularly after they had been boiled in bacon or pork liquor, and when bacon or pork is supplied.

Pea-shells. As the shell is indigestible, and causes loss of other food by producing relaxation of the bowels, only *split* peas should be purchased, and, indeed, this should be made an essential condition in sanctioning their use. Whole peas at a lower price are dearer food than split peas at a higher price. It is possible in home cookery to sieve out the shells after the farina has been dissolved, but when meat has been added, and when the cooking is less carefully performed, as in a workhouse, this cannot be effected.

Best kind of peas to be preferred. The flavour of peas being always somewhat repulsive, and yet varying much with the quality of the sample, it may fairly be expected that the best peas, whether white, grey, or split, shall be procured, and not the lowest quality, which the lowest tender would probably bring.

Beans. The beans of the continent of Europe, with the millet and pulse of Asia and Africa, are of nearly equal value as nutrients with peas, and some are far more agreeable to the palate, but whilst they are cheap and familiarly known in the several localities referred to, they are dear and unknown here, and cannot, I think, compete with peas in workhouse dietaries, and in a country where both bread and potatoes are good and attainable.

Barley. Pearl and Scotch barley are agreeable and valuable foods. They are, however, dearer and of less nutritive value than peas, and are not likely to supplant them; but their use in change with peas would be very agreeable to the inmates of workhouses. Whenever, moreover, milk is given in porridge, or used in rice-pudding, Scotch barley might be added in change of bread or rice with advantage.

Rice. Rice is inferior to all the foregoing in nutritive value, and at the price which is charged for it in this country it is dearer than any of them. It is, moreover, insipid in flavour, and is rejected as a frequent article of

diet, unless spice or sapid food be given with it. There is much more difference in the flavour and price of different kinds of rice than in their nutritive value, and for workhouse dietaries the lower priced and slightly coloured rice should be selected. In the absence of fresh vegetables rice might occasionally be eaten with meat, but the use of bread or peas would be more economical.

Sago, tapioca, and arrowroot are used exclusively for the sick. As they are composed almost entirely of starch there is reason to believe that they are imperfectly digested and assimilated when cooked with water only. When used they should be cooked with milk or beef tea; but in nutritive value, even for young children, they are far inferior to wheaten flour, and incomparably less economical. Their use should be kept within the narrowest limits.

Fresh Vegetables.

Of all kinds of fresh vegetables none can compare in general utility with the potato. The flavour is agreeable, and by repeated use it never disgusts; it is readily cooked, and can be obtained in good condition nearly all the year round; it is the most nutritive of its class, and it can be eaten without injury by persons of all ages. The cost has increased of late years, whilst that of wheaten flour has been reduced, and at the present time, when its cost and nutriment are considered together, it is more than twice as dear as bread. When, however, it is grown on the workhouse land, and with the labour of the inmates, its cost is very small, and it may then be strictly an economical food.

It has already been stated that fresh vegetables in some form are necessary to good nutrition, and consequently, if the potato were dearer than other food, it would be false economy to withhold it when it could be obtained; but at the season of the year when it is scarce, and not good, it would be economical to supplant it in chief part by bread, and in other part by other vegetables. When potato is bought, as in towns, its use might and should, on grounds of economy, at all seasons be restricted within narrower limits than at present, and the deficiency made good by bread; for in no case is it needful to give 1 lb. or even $\frac{3}{4}$ lb. of potato daily. The present plan of giving a large quantity of potato in workhouse and other dietaries was established 30 years ago, before the occurrence of the potato disease, when the cost of potato was scarcely half of the present price, and when flour was one-fourth higher in price than at present.

The chief advantages of having land to the extent of several acres under cultivation in connexion with a country workhouse are, firstly, that it affords both healthful and profitable occupation for the inmates, and is a good industrial training for boys; secondly, that it may yield an abundant supply of various kinds of garden vegetables for the use of the inmates. Many workhouses grow their whole supply of potato on their own land, in addition to a certain quantity of green vegetables, but some, on grounds of apparent economy, use a large portion of their land for the growth of grain, which is either sold or ground for use, whilst their crop of vegetables is insignificant. This I think false economy, and it would be much better that all the land should be devoted to the growth of potato and green vegetables, so that an abundant supply of both may be afforded at all seasons of the year. The more abundant use of carrots, turnips, cabbage, greens, &c., would give great pleasure to the inmates, and greatly improve their health, and they should be given in their season *sometimes in addition to and in lieu of a part of the potato*, as well as in *lieu of the whole potato* when that vegetable is not good. I have

found leeks and potherbs so deficient as to excite complaint on the part of the inmates, whilst the land was devoted to the growth of oats. In none have I seen so large a growth of green vegetables as would supplant an important part of the potato in the dietary.

The necessity of an abundant supply of fresh vegetables is especially urgent in workhouses on account of the frequency with which boiled meat, broth, and soup are given, since they add flavour to the meat (which being boiled loses much of its own flavour) and the meat liquor, and do much to correct the evil tendency of the salt which is so largely contained in the salted meat and broth.

Tea.

Tea.—Tea and coffee differ from other foods in offering scarcely any nutriment, but by their stimulating property they promote the digestion and transformation of food. They are, therefore, very useful to the old and the feeble, provided there be also a sufficient amount of food taken. In the selection of tea a sample which contains much stalk should be avoided, and one consisting of moderately sized leaves preferred. The value of teas in the market depends chiefly upon their flavour, but the value of all pure teas, in reference to their action, is much the same, and, therefore, for a workhouse dietary the lower priced congou should be preferred, provided it be pure and free from stalks. Coffee should be bought in the berry, and ground as it may be required for use. The admixture of one-fifth part of good chicory is quite proper. There are certain differences in the action of tea and coffee, by which the former is more fitted for the afternoon meal and the latter for breakfast.

Cocoa.

Cocoa.—Cocoa, in addition to the property which belongs to tea and coffee, contains also an appreciable amount of nutriment, since it is composed of half of its weight of fat or oil. Moreover, it is less exciting, and causes less irritation of the stomach than tea, and for many persons, and particularly for the sick, it is to be preferred. Regarded as a food, however, it is doubtless a very dear one; and in order to increase its value in nutrition it should be prepared with milk. Prepared cocoa should be used in preference to the cocoa nibs, and a smaller quantity will be necessary when milk is used.

2nd.—Animal Food.

Animal
food.
Flesh.

Flesh.—It is necessary to divide all kinds of flesh into two parts—viz., the lean and the fat, since the nutritive qualities of the two substances differ greatly, and the value of the meat depends in great part upon their relative properties. The lean contains nitrogen, and therefore by its nutritive properties repairs the structures of the body, or, as the case may be, promotes growth; whilst fat is burnt within the body, and produces heat, or is mixed with the fluid of the body as oil, or is laid up in different parts as fat.

Fat and
lean.

The fat and lean respectively are in their nature and properties the same in all kinds of flesh, and, speaking generally, the comparison in a nutritive point of view between the flesh of different animals is simply between the relative quantities of fat and lean. There are other differences, however, which have a certain value, as, for example, flavour, strength, and digestibility.

Quality.

All kinds of flesh vary according to the breeding and feeding of the animal. The quality of meat is determined by its flavour and tenderness. The flavour depends upon the feeding, since with plenty of good food the blood and juices of the flesh become more abundant, and the peculiar substance upon which the flavour depends, viz., ozmazome, is also more abundant. The tenderness depends chiefly upon age, but is also increased by good feeding. These two qualities have the further advantage of exciting the appetite and the relish for food, at the same time that they render the food more digestible. Hence they have much value; but, on

the other hand, meat which contains a less quantity of blood and juices, and which is less tender, contains a larger proportion of solid nutritive matter, and if digested would be more nutritious. In these respects the well-fed Southdown mutton, and the flesh of the hardy Welsh and Scotch mountain sheep, offer a good contrast.

But in selecting meat for the inmates of a workhouse, it is true economy to obtain that of well-fed animals on the ground of flavour, but particularly of digestibility, since a larger proportion of it will be masticated by the old people and be converted into nourishment by all. The parts of an animal to be selected should not be the choice ones, since the demand for those by the rich gives them a value far higher than the nutriment which they can afford will warrant. Neither should they be altogether the most inferior, since such contain an undue proportion of bone or of fat, or being loose and tough in texture are not easily masticated or digested. The aim should be to obtain the leaner joints of well-fed animals (yet having a moderate proportion of fat), and such as are solid in texture. Proper selection.

Some difference of opinion may reasonably exist as to the propriety of buying the joints with or without bone. It is economical to have bones to aid in the preparation of soup. If the butcher take the bones out he charges an increased price for the meat, whilst if he be allowed to send meat with bone, he naturally prefers to send those parts which contain the most bone, and even, as I have seen, to add additional bones. The only check is the efficiency and attention of the master, and as those qualities are not universally found, the wiser course is probably to select the joints to be supplied, to have them without bone, and to buy a certain quantity of bones at a proper price separately. It is necessary to add that the nutritive value of a joint varies with the amount of bone which it contains, and that it is calculated upon the flesh only. Joints.

The "offal" of animals is also variously regarded in its fitness for workhouse dietaries. There can be no doubt that at the price usually paid for it it is the cheapest part of the animal in relation to nutriment, but yet it is not in general well adapted to this purpose. The head can only be used in making soup, and whilst ox-heads are particularly fitted for this purpose, sheep's heads are deficient in flavour and colour, so that they do not give taste or character to the soup, neither can the flesh be readily recognized in it. When, however, sheep's heads or pigs' heads are used for this purpose, it is well to make broth, and not soup, to thicken it very slightly only, to flavour it well with parsley, pepper, and salt, and to cut the meat into comparatively large portions, so that it may be recognized, and to give a good supply of bread with it. Liver and lungs (called lights) add little to broth or soup during cooking, and are therefore quite unfitted for the purpose, and if used should be fried, and some kind of fat or bacon should be fried with them. Pigs' fry; and, indeed, the fry of sheep and oxen, including the liver and lungs, kidneys and heart, when free from disease, and properly prepared, is an agreeable and nutritive dish and is probably the most economical kind of flesh which could be supplied. When it is used, care should be taken to remove all the glands from the lungs, and to cut the liver into thin slices and fry it well. Offal.

Beef has several advantages over every other kind of flesh :

Beef.

- 1st. It is regarded as the strongest kind of flesh, and this due in part to the large amount of ozmazome which it contains, and by which beef-tea is rendered so much superior to mutton broth. This is no doubt both a popular and a correct view, and the ozmazome, if not directly converted into nutriment, aids indirectly by stimu-

lating the appetite and other vital actions. In this respect the better the flavour the better the food. The idea of "strength" also involves the following :

- 2nd. It offers a large proportion of lean to fat, so that in a given weight there is a larger quantity of nitrogen than is found in some other kinds of flesh. There are also many joints which are almost entirely lean, and are therefore particularly fitted for the purpose in hand.
- 3rd. The relative price of beef and other kind of flesh, considered in relation to the nourishment afforded by it, renders beef the most economical. In addition to these advantages it is equal to any other and superior to some kinds of flesh in digestibility.

Different
values of
joints.

The parts to be selected are the round, thick-flank, brisket, and sticking-piece on the one hand, and legs, shins, and heads of beef on the other ; and I have placed them in their true order of value. The round is fine, solid meat, with much flavour, and with only one bone ; the thick-flank is looser in texture, without bone, and yet of good flavour ; the brisket contains a large proportion of fat and bone ; and the sticking-piece is lean and loose, less agreeable in flavour and less digestible.

The legs and shins and heads of beef should always be bought apart since they contain from 30 to 50 per cent. of bone, whilst the bone in even the brisket and sticking-piece does not or should not exceed 10 per cent. Of the four parts just mentioned the two first should form half of the weekly supply. The three latter, and particularly the last, should be used exclusively as soup meat.

Mutton,

Mutton has a more delicate flavour, and is said to be more digestible than beef, and hence it is specially fitted for the use of the sick. The broth which is obtained when the meat has been boiled in water has also a delicate flavour, and is also much used by the sick. It is inferior to beef in nutritive value, because it contains a large proportion of fat ; but this relation differs much—the proportion of fat being the least in Scotch and Welsh mutton, and the greatest in Leicestershire mutton. The kind which is supplied depends much upon that which is fed in the neighbourhood, but as fat mutton is not so saleable as moderately lean mutton, the butcher is apt to send the former in preference to the latter.

joints of,

The best joint both in nutriment and economy is undoubtedly the leg, on account of the thickness of the solid flesh, and the small proportion of fat and bone, although its price is higher than that of any other part. The next is the shoulder and neck, the former being inferior to the leg in the looseness of its texture, and the latter in the larger proportion of fat and bone. The neck is the least economical part, even at the lower price paid for it, and should be used in workhouses only when broth is needed.

should be
more gene-
rally used.

It is to be regretted that mutton is not more largely supplied to the inmates of workhouses, since it offers a most agreeable change of meat both when hot and cold. When the practice is more general of providing roasted meat, it will no doubt be preferred to beef.

Pork,

Pork is the flesh in ordinary use amongst labourers in certain counties, and there it is also used in workhouses, but otherwise the inmates obtain it only when a pig is killed which had been fed upon the premises. When the whole pig is used as pork it contains a larger proportion of fat to the lean than is found even in mutton, and hence it occupies a lower position in the scale of nutrition. When the lean parts are cut from the fat the proportion of bone to meat is very large. It is also less digestible than either mutton or beef, probably because it is less easily masticated ; but its flavour is agreeable, and as a change of food it is not undesirable. When fresh it should be roasted, but when it has been pickled it must be boiled, and in these respects it resembles beef.

The most economical joint when the whole is used is the leg, and for Joints of. the reasons assigned when speaking of mutton, but it is probably the least masticable and digestible part. This may be used either fresh and roasted, or salted and boiled. The loin and neck are far less economical, but they are fuller of flavour, and are especially adapted for roasting. The shoulder-piece and belly parts should almost always be pickled and boiled, and, next to the leg, are economical at the price charged for them. I have already spoken of the head and fry.

Bacon being the fat part of the pig which is left after the lean flesh Bacon. has been cut away, is necessarily low in nutritive value, but this deficiency is greater or less as the ham and the shoulder have been also removed. Its use is, however, very general in almost every part of the kingdom, and is due to its agreeable flavour and the convenience of having dried flesh in the house. In workhouses, however, its use is most properly very restricted, and is almost entirely confined to that which has been fed and prepared in the house.

Whilst, therefore, in ordinary life it is a most agreeable food, and in many parts of the country is almost the only kind of flesh which is obtained, its general use in workhouses cannot be commended.

The nutritive value of bones has been greatly understated, in consequence of a misapprehension which has long existed as to the results of two Commissions of Inquiry which were instituted in France and Belgium. It was then proved that animals cannot live upon cooked bones alone; but it was not shown, as has been inferred, that bones are not valuable as a part of dietary. When reporting to the Privy Council upon the dietary of the Lancashire operatives, I had special analyses made of the nutritive material which was extracted from bones, and the result showed that bones were equal in nutriment to about one-third of their weight of flesh in carbon, and one-seventh in nitrogen, and at the relative prices of bones and flesh the use of the former rendered the dietary more economical. Bones.

Hence, when fresh bones can be purchased at 1*d.* to 1½*d.* per lb., and sold again after cooking at ½*d.* per lb., their use is much to be commended, and a certain proportion should be obtained weekly. They can be used only in the preparation of soup or hash, and can be cooked only by boiling.

Fish.—Fish is not used extensively by the labouring classes in any part of my district, and its nutritive value is far below that of meat. Fish. As a change of food, when fresh herrings are plentiful and cheap, they may be used occasionally instead of meat with advantage, and permission to the master might be accorded for that purpose. At the price at which fresh herrings are frequently sold, more nutriment is supplied by them in proportion to cost than by any other food, but as the flavour is not universally liked, as fish is not easily digestible by many, and as in some cases it is apt to induce diarrhœa, its general consumption in my district is not to be commended.

Milk.—Milk contains within itself all the elements of nutrition which Milk. are needful to sustain life, and as they are arranged in due proportion and together constitute a most digestible combination, it is probably the most important food which has been placed at the service of man. Its use to the exclusion of every other food in infancy is familiar to us, but even in adult life there are many communities—as the peasants occupying the higher mountains of Sweden, the Tyrol, and Switzerland, who live almost exclusively upon it.

Its counterpart is meat, and as meat is readily obtainable in the country, the use of milk may be limited as an exclusive food to infancy; but after that period it should still form a portion of every dietary.

There is a closer resemblance in nutritive qualities between new milk, skim milk, and butter-milk than is ordinarily understood. Skimmed milk differs from new milk in having lost the butter (about $\frac{1}{2}$ oz. in each pint); and, as butter is a fat, it may be readily replaced by another fat, as suet, when the skimmed milk is boiled or made into a pudding. Skimmed milk is, however, cheaper than new milk, since the price of the butter which has been removed being greater than that of other fats, it more than covers the cost of any fat which may be used to supply its place. Butter-milk differs from skimmed milk only in being older and having had a part of its sugar* transformed into acid. In nutritive qualities the two are practically the same; and instead of butter-milk being so greatly inferior to skimmed milk as is commonly understood, there are conditions in which it is the better food, as, for example, on the one hand in Devonshire, where all the butter is extracted from the skimmed milk by the aid of heat; and in Wales and other places, where, on the other hand, small lumps of butter are left in the butter-milk after the churning.

Except in a few localities, where new milk is plentiful and cheap, it is not economical to buy it for a workhouse; but skimmed milk should be purchased universally, and suet added in its preparation in the proportion of $\frac{1}{4}$ oz. to each pint. Butter-milk has the two great disadvantages as a part of a dietary, viz., that its supply cannot be regular, and, from the amount of acid which it contains, it curdles when boiled. It may, however, be drank cold, and be a most useful and grateful addition to a dietary in warm weather. Every workhouse should obtain a supply in the summer season, and give it in addition to the usual dietary, or in substitution of the gruel to such as prefer it.

Supply
deficient.

There can be no doubt that the deficient supply of milk in some of its forms is one of the most prominent evils in the present system of Poor Law dietaries.

Whey.

It may be well to add a word in reference to whey, although it could not be included as an essential part of a dietary. It has lost both the butter and the cheese of the milk, and is therefore very far inferior to any other form of milk; but even in its poorest state it retains all the salts of the milk, which, together with acid, are of very great value in nutrition, and are excellent preventatives of scurvy. There are, however, many places where an appreciable quantity of butter is left in the whey, so that with the thrifty habits of Welshmen, it is common in farm-houses to prepare an inferior kind of butter for domestic use from it.

Farmers un-
willing to
sell skim
milk and
butter milk.

It is to be regretted that for various personal reasons farmers in many dairy districts are unwilling to sell either skimmed milk or butter-milk; but prefer the readier plan of feeding hounds and pigs with it. If its great value in nutriment, although little value in money, were well understood, it is probable that the guardians, who in country unions are chiefly farmers, would be willing to make an arrangement, at least occasionally, to confer the great advantage now sought upon the poor who are placed under their supervision.

Adultera-
tions.

There are, however, districts where milk is not attainable even by the farmers themselves, and there the poor must suffer want.

The adulterations of milk at the present time are chiefly with water; and this may be determined by means of a hydrometer, which shows at a glance the specific gravity of the fluid. If we take skimmed milk as the form of milk most frequently used in workhouses, Dr. Hassall found that when pure its specific gravity is about 1031; when 10 per cent. of water is added it is 1027; with 20 per cent., 1025; with 30 per cent.,

* There is about $\frac{1}{2}$ oz. of sugar in each pint of new milk.

1021 ; and with 50 per cent., 1016. As there is some variation in the quality of milk according to the cow, the food, and the period of the day when the cow was milked, it is not possible to apply this rule with great exactness ; but when 10 per cent. of water has been added, the test should show the adulteration.

New milk is lessened in value by the removal of a portion of the cream and by the addition of water. The former is determined by the aid of an instrument called a galactometer. The latter is more difficult, since the specific gravity of cream being lighter than that of milk, the more cream in the milk the lower the specific gravity.

The colour and the flavour of both new and skimmed milk are, however, good and ready guides of quality by one who is competent to judge.

Cheese.—Cheese is both an important food and an important part of the dietary in some counties in England and Wales. Cheese,

The essential element, and that which constitutes its bulk, is the casein, chemical composition. or cheese of the milk ; and it is, therefore, the richest of all the foods in nitrogen ; but, in addition, it always contains some butter from the milk and some salts from the whey which remain in it. The amount of salts is necessarily small ; but that of butter depends upon whether it has been made from new or skimmed milk, and when made from new and rich milk it contains much butter and less cheese in a given weight. At the best it is therefore a food which cannot alone sustain life and strength, and when it is poor in fat and rich in nitrogen, it is not only called poor cheese, and is sold at a low price, but it is almost entirely a food of one element only.

The digestibility of cheese varies with its quality and age as well as Digestibility. with the power of digestion of those who eat it. When it contains much fat it is more digestible, and therefore new milk cheese is more digestible than skimmed-milk cheese. When new it is tough, and it is masticated with much difficulty ; and when old it is often decayed and rancid, and is liable to cause indigestion. Hence, neither poor cheese, nor cheese which is very new or very old, is an economical food ; neither is very good cheese economical at the high price which is paid for it ; but that kind is economical which is made really good, which contains a moderate quantity of butter, and is neither new nor old. It is false economy which provides at any price poor, hard, tough, and rancid cheese, since cheese is itself difficult of digestion and tends to produce indigestion, although it is exceedingly rich in one of the principal elements of nutrition. It cannot enter largely into a workhouse dietary except in those unions where it is largely used by labourers out of the workhouse ; but in the latter case it may fairly be used as freely within as without the workhouse. There is, however, a property about cheese which has been known in all ages, and is quoted as a familiar truth by Shakespeare, viz., that it promotes the digestion of other food, which renders it a useful addition to every dietary supplying bread or flour largely ; but in such case it should be given in very small quantities, as, for example, $\frac{1}{2}$ oz. at a time, and withheld from those on whom it acts injuriously upon the stomach.

Eggs.—Eggs do not and cannot enter into the ordinary diet of the Eggs. inmates of a workhouse, but are restricted to the sick dietaries. They are inferior to milk and meat, with which they are allied in nutritive elements, since they consist chiefly of one element only (albumen) ; but they also possess some oil in the yolk, and various valuable salts. When milk is dear and eggs are cheap, the latter become one of the most economical articles of food. They are easily digested, provided they are cooked in puddings, or lightly boiled and eaten with bread or other mixed foods ; but when they are hard-boiled, and eaten without due mastication, they are digested with much difficulty. The eggs of seagulls are large, cheap, and economical when readily obtained.

Butter,
economy of.

Butter.—Butter is now allowed as a food to the aged and the sick in nearly all workhouses. It is the dearest form in which fat can be given, when its price is compared with its nutritive qualities; but as its consistence enables it to be readily spread upon bread without being rapidly absorbed, and its flavour is more agreeable than that of any other fat, it is necessary to allow its use. It is for the reasons given particularly liable to adulteration, and chiefly by the addition of water, salt, and lower priced fats. There must always be a certain proportion of water mixed up with it, but it should not exceed $\frac{1}{2}$ oz. in the pound, whereas it frequently amounts in fresh butter to $1\frac{1}{2}$ oz. This is ascertained by cutting up a pound of butter into very small portions, and heating it in a slow oven until its temperature is as high, or a little higher, than that of boiling water (212°), and occasionally stirring it; the greater part of the water will thus be driven off, and if care have been taken to prevent waste, the difference in weight will show whether any excess of water has been present.

Salt butter.

Salt is added to fresh butter, and much more to salt butter, in quantities varying from $\frac{1}{4}$ oz. to 2 oz. in the pound. It is detected, and the quantity ascertained, by washing the butter well and working it up thoroughly in different quantities of water, until the greater part of the salt has been extracted. If the water containing the salt be placed in a slow oven, it will evaporate and leave the salt, which may be weighed; and if the butter which is left be heated as above mentioned, the loss of weight from the original quantity will show the amount both of salt and water which it contained. These tests are sufficiently perfect, in a practical point of view, and may be readily and should be from time to time applied.

Adultera-
tion.

The mixture of other fats—as inferior qualities of butter, lard, and mutton fat—can be determined only by the flavour, and therefore the test is very imperfect. The importance of these adulterations is very evident in an economical point of view, for water and salt may be reckoned as without value, and mutton fat at only 4*d.* to 5*d.* per lb.; whilst they will be charged as salt butter at 10*d.* to 1*s.* per lb.

The proper course is to select the best quality of salt butter in the firkin, since it will contain less water, and probably less of inferior fats than other kinds, and as the difference in price is still considerable between it and fresh butter, it is much more the economical. As a matter of economy it is to be desired that lard and cold fat mutton should be supplied instead of butter to such of the inmates as prefer them, but as they could not be substituted at all times, there would be a difficulty in making them an integral part of a workhouse dietary.

Suet.

Suet.—Suet is largely used, and is a most valuable form of fat. Mutton suet is cheaper than beef suet, and is therefore the kind which is commonly contracted for; but in its flavour, and its power to render flour pudding light, is far inferior to beef suet. Whenever it is practicable, beef suet should be obtained for suet-pudding, and particularly when sauce is not provided with the pudding. In point of nutriment there is no material difference, and therefore at the price charged for them mutton suet is much the more economical of the two. Suet should be used much more generally than at present in making rice and other such puddings, and, if beef suet be used, in making gruel and porridge also.

Dripping.

Dripping.—Dripping is the cheapest and best of all kinds of fat, except mutton fat; but it is rarely used in workhouses. When, however, meat shall be more frequently cooked by roasting, or when it is desirable to skim off some portions of the fat from the meat liquor (which, however, in the interest of the inmates must be very rare), it will be more generally obtainable, and could be advantageously used in exchange with suet in puddings and with butter on bread.

III. SPECIAL REQUIREMENTS OF EACH CLASS OF INMATES.

There are several classes of inmates in workhouses, each of which has special wants, and for whom a special dietary is needed. They are—1. Children of various ages ; 2. Able-bodied adults ; 3. Aged and infirm, and lunatics ; 4. Lying-in-women ; 5. Sick ; 6. Vagrants.

Require-
ments of
inmates.

1.—*Children and Youths.*

It is a matter both of public policy and of local advantage, that children should be so fed that whilst they shall not acquire tastes which cannot be gratified in after life, they shall grow up strong and healthy, and be able to serve their employers and earn their living. If they should be of feeble health and imperfectly developed, they may procreate children of inferior health, and both they and theirs are likely to come to the workhouse to be maintained at the public expense. Moreover, so far as quality of mind (as indicated by intelligence and enterprise) is associated with defective bodily power (and this in the poor is far more general than has been recognized), they will also continue to occupy an inferior position even amongst their fellows, be inferior workmen and citizens, and be less influenced by the educational efforts which the State and private organizations are so widely making. An abundant supply of food to the young is essential to their health, strength, and growth, and is consistent with the soundest economy. Its measure can scarcely be less than the sense of want felt by the child, and as children differ much in their desire for food, it would be well if the supply of the good and cheap bread of our time could be almost unlimited except to the few who are manifestly wasteful.

Children
and youths.

An infant under 6 to 12 months of age has its power of digestion limited, so that it cannot digest flour, arrowroot, or other foods containing starch ; but can digest fat, which is the strongest form of the same kind of food. Nature has provided milk alone for this period of life, and no other food whatever can efficiently supply the wants of the child. The mess of water, bread and sugar, and the more refined and expensive preparation of arrowroot and water, which are often supplied in workhouses, are quite insufficient to maintain health. The mother's milk, when good and abundant, is all that is needed ; and when otherwise, or in its absence, cow's new milk, with its fat (carbon), cheese (nitrogen), and salts, is required in quantity equal to that which a mother usually supplies, viz., two to three pints daily.

From 9 to 12 months of age, and during childhood, the power to digest bread and similar food exists, and rice-pudding, bread-pudding, and oatmeal porridge, or other foods made with milk, are proper, as are also soups, broth and bread, and fresh vegetables.

It may be questioned at what age it becomes needful to give meat, and whether under 5 years it may be altogether dispensed with. The answer depends upon the amount of milk and fat which are supplied in a dietary without meat. If two pints of milk be given with pudding, bread, vegetables, and butter (or other fat) in sufficient quantity, it is probable that meat is not necessary ; but when, as in workhouses, but a little skimmed milk is given—perhaps only half a pint daily—and no fat is added to the porridge or rice-pudding, it is certain that some portion of meat should be supplied.

At a later period of childhood milk is still necessary, and meat must be added ; but the quantity of the latter at a meal should not be large. Whenever the quantity of milk is deficient, that of meat should be increased, and, in addition, plenty of fresh vegetables and butter-milk or

they are required to provide the quantity of salts which is needful to enable the body to be nourished by the other food.

At what period the diet of a youth should correspond in quantity and quality with that of a man is open to question, and may vary from 12 to 15 years, but it can never be at so early an age as 9 years—the period at which the adult dietaries commence in some workhouses. During the whole of this period of youth an abundant supply of bread should be given, in addition to moderate portions of milk and meat. Bread is then well digested, and the large quantity of both nitrogenous and carbonaceous food which it supplies is demanded by the rapid growth in weight and size of body which should then occur, and which is limited to that period of life.

It is not, perhaps, well appreciated that up to adult life each period is devoted to a particular part of growth, and if from any cause the growth does not then occur, the evil is irremediable. Hence the great responsibility of those who have the power to withhold or to supply food in childhood and youth.

2.—*Able-bodied Adults.*

Able-bodied
adults.

If the term “able-bodied” were well defined, there would be no difficulty in dealing with this class; but in practice it is found that many are included who labour under some defect of body or weakness of mind, or are pregnant and await their confinement; so that if there be six able-bodied men or women in a workhouse not more than two probably are capable of performing a day’s work. There can be no doubt that for truly able-bodied men and women the principle which has guided the administration of the Poor Law from the beginning is the correct one, and that the dietary should deter rather than entice them. The aim in such cases should be not to injure their health and strength, but to provide them with the plainest food, and with simply enough of it. Bread is the type of the food required, and it should be supplemented with cheese, and such hot foods as are really necessary. In this respect the system actually in operation in many of our workhouses is, I think, most erroneous.

There is an assumption that an “able-bodied” inmate requires more food, and much of it of a better quality than the next class to which I shall refer—the aged and infirm; and if the able-bodied were at the same time required to perform a hard day’s work there might be much truth in it, but when little or no work is exacted they do not require more food, and being well and healthy, they can more readily digest plain and rough food. I therefore affirm that such persons do not need so good a diet as is required by the infirm, and if they require more food, it is only of the plain and less expensive kind. When the able-bodied obtain not only more bread, but more meat than others, an error is committed, and misapprehension of their wants exists. For such persons bread in large quantities, with cheese, gruel, and soup, is all that should be afforded; and for the limited period during which they remain, or should remain in the workhouse, their wants would be sufficiently supplied. Some further indulgence may be extended to women.

Such persons as pregnant women, imbeciles, lunatics, and others labouring under some defect which renders them unable to perform a full day’s labour, must for the purpose of dietary be treated in an exceptional manner.

3.—*Aged and Infirm.*

This class is not so well defined as might be supposed, since it includes persons of great disparity in age, vital powers, and physical wants. The only principle, however, which can be adopted is the following, viz., that since the appetite and digestion being impaired, the power to maintain heat of body lessened, the body having ceased to grow, and exertion being reduced to a small amount, the food supplied should be moderate in quantity, very digestible, sapid in flavour, and administered when hot; and as these persons are for the most part fit objects of charity, comforts may be properly added.

Aged and infirm.

Hence meat, soups, broth, and hash made from meat, with potatoes and other cooked vegetables, should be sufficiently supplied; whilst bread and cheese should be more restricted in quantity. Puddings, in which milk is largely used, and the luxuries of tea, butter, and sugar, should be permitted.

The period when tea should be allowed has been fixed arbitrarily at an advanced age, and I question whether it might not be anticipated with propriety and commence at 55 or 60 years of age for those who are infirm and likely to remain permanent inmates. The use of tea is to promote the digestion of other foods, and is therefore required nearly as much at these ages as at 70 years of age; and if it be given without regard to mere utility, I think that a permanently infirm person is as much entitled to such comforts as one more advanced in life. It is, however, questionable whether it is wise to give it twice a day, and particularly to men who have been accustomed to a milk breakfast through the greater part of their lives. If the use of tea were to be extended to those less advanced in life, than at present prevails, it should be given in the afternoon only, and the breakfast should consist of more nutritive food.

The dictary of lunatics, imbeciles, and idiots should be placed under this head, for, in accordance with universal opinion, the wants of the system in these demand an abundant supply of food, and particularly of milk and meat.

Lunatics and Imbeciles.

4.—*Lying-in and Suckling Women.*

The wants of women awaiting their confinement are chiefly those of the aged and infirm.

Lying-in and suckling women.

After confinement it is the practice to give only fluid food for a period varying from three to seven days, but the views of the medical profession upon this matter have recently changed, and it is probable that in ordinary cases low diet should not be extended beyond the second or third day. When the duties of suckling have commenced, there can be no doubt that much food is required, so that the mother shall not be impoverished whilst she affords a supply of good milk to the child. The absence of this amount lessens the supply and lowers the quality of the milk, and thus the evil is carried from the mother to the child, and, if not corrected, must reduce the mother and render the child puny and unhealthy. No special arrangement of food is required, but none is more suitable than that which she has to supply, viz., milk, on account of its nutritive and easily digestible character. To this should be added the usual food of the aged and infirm.

There is much difference of opinion as to the necessity for beer in such cases, with a view to increase the quantity of milk; but when good food is given in proper quantity, and is duly digested, the body requires no further stimulant.

5.—*The Sick.*

The sick.

It is not possible to indicate the wants of the sick otherwise than in general terms, since they vary with each case, and the medical officer alone can direct their supply. It is, however, more convenient to have a general arrangement of such dietaries, so that the foods may be kept ready prepared, and to make additions of special foods as may be necessary, rather than leave the greater part of them to the discretion and convenience of the matron. Such an one would be the low, medium, and high diets, each being in its turn subdivided.

6.—*Vagrants.*

Vagrants.

It is very difficult to indicate the wants of vagrants, since that class is for the most part composed of beggars who obtain an uncertain, yet often a very abundant, supply of food away from the workhouse. But there are others whose wants are undoubtedly urgent. The only principle consistent with public policy upon which the dietary can be framed is that of giving no more food than at the time will satisfy the cravings of hunger and prevent disease, committing to the master or relieving officer the power to add to it in exceptional cases. Hence, bread alone, or with a little cheese, broth, or gruel, is all that the night's wants require; but when the weather is cold, and particularly when rainy, and the clothes of the vagrant are wet, some hot food should certainly be given. There is, however, no necessity to give more than a pint of such fluid, neither is it required to give milk in ordinary cases.

The wants of the body require that food should be given both at night and in the morning, and when task work is provided, the whole or part of the morning's supply of food should be given before it is commenced. To give food at night only, if only enough for one meal, is to tempt the vagrant to steal, so as to obtain his breakfast, and to require him to perform three or four hour's work before taking his breakfast is little less than cruelty.

Difference of the Two Sexes.

The two sexes.

It now remains to form an estimate of the relative wants of the two sexes, and the present one is not, I think, satisfactory. When we consider the case of the hard-working labourer and his wife, we may reasonably infer that the former, by exertion, and particularly by labour in the open air, requires much more food than the latter when engaged in her household duties, and in such instances a diminution of one-quarter, or even of one-third, might be proper for the woman. But such does not hold good when both are engaged in quiet in-door occupation, or when they are inmates of a workhouse performing little or no work. In such cases, the only ground for difference in the quantity of food to be given is that of weight of body (apart, however, from the weight of the bones), and if the food given to the man be only the quantity which he needs, the deduction for the woman should not exceed one-fifth or one-sixth.

IV. THE ORDINARY FOOD OF THE LABOURING CLASSES.

It now remains to proceed to the construction of workhouse dietaries, but before doing so, it will be advantageous to show what is the amount of food usually obtained by the outdoor labouring classes in the different counties of England and in Wales.

This may be effected for country populations by extracting a part of a table from a report on low-fed populations, which I made for the Privy Council in the year 1863, which was published in the report of the medical officer of the Privy Council for that year. Those enquiries were made by myself personally in the most exact manner at the houses of the labourer in every county in England and in Wales, and in reckoning the number of adults in the family, two children under æt. 10 years have been regarded as an adult.

The following table gives the average quantity of various foods per adult which were consumed by labourers' families, reckoned as adults, weekly :—

County.	Bread Stuffs: as Flour, Bread, Oatmeal, and Rice.	Separated Sugars.	Separated Fats.	Meat or Bacon.	Milk.	Cheese.	Tea.
	Per Adult.	Per Adult.	Per Adult.	Per Adult.	Per Adult.	Per Adult.	Per Adult.
	lbs.	oz.	oz.	oz.	Fl. oz.	oz.	oz.
1. Bedfordshire -	12	5	5½	20	28	1·4	·37
2. Berks -	12¼	8	8	17	20½	1½	·5
3. Bucks -	12¼	4¾	5	18½	13½	4	·48
4. Cambridgeshire	14¼	7¾	6	17	9	1·3	·37
5. Cheshire -	11	15¾	6	12½	50	3·	·7
6. Cornwall -	9¼	4½	4¼	22	58	--	0½
7. Cumberland -	12¾	13½	8	19	56½	8¼	·9
8. Derbyshire -	12¾	10	5¼	13¾	37½	1½	0½
9. Devon -	12	4½	3½	11½	57½	—	0½
10. Dorset -	13	3¼	4¼	7¼	12	12½	0½
11. Durham -	11½	9¾	10	29½	46¼	1¾	·8
12. Essex -	11¾	7½	7	6½	10	4	·64
13. Gloucestershire -	12½	6¼	3¾	8	0¾	5¾	·4
14. Hants. -	11	4½	6	9¼	8¼	3¼	·4
15. Herts -	12½	6¼	3	14½	18	1·5	·33
16. Huntingdonshire	11½	7	4½	20	21¾	1·5	·5
17. Kent -	12¼	11¾	14¼	19	18	9¼	·7
18. Lancashire -	11	16	10¼	26¾	80	4	·7
19. Leicestershire -	12	10	6¼	17½	40	2·	·44
20. Lincolnshire -	12¼	7	3¼	21	45	·8	·35
21. Rutland -	11¾	10	5½	17¼	28	1·5	·7
22. Salop -	15½	9¼	5½	5½	49	·3	0½
23. Somerset -	10½	3¼	3	6¾	10½	4¼	·4
24. Staffordshire -	11	11¼	7¼	16¾	16¾	4	0½
25. Suffolk -	13	11¼	9¼	14	26¾	4	·45
26. Surrey -	12¼	12	10	26¼	2	8¼	·9
27. Sussex -	12¾	9½	9½	12½	12·7	5½	·8
28. Norfolk -	12¾	5¼	2¾	7	40	1¼	·25
29. Northampton -	11½	7	5½	28¼	18	1¼	·54
30. Northumberland	15¼	12¼	7¼	35	89	4	·7
31. Notts -	13¼	8	3½	24	54	·9	·43
32. Oxfordshire -	11	5½	5½	16	20	1¾	·5
33. Warwickshire -	11½	14½	6¼	8½	25½	4½	·52
34. Westmoreland -	12½	10¾	6¾	21½	120	2	1·0
35. Wilts -	12½	5	5¼	7	15½	5	·55
36. Worcestershire -	12	7	5¼	17½	53	2¼	·6
37. Yorkshire -	12¾	10¼	7	26	74·7	—	·6
Anglesey -	18¾	12¾	9¼	10¾	150¾	—	1·0
North Wales -	14¾	8½	11¼	15¼	178	1·8	·8
South Wales -	13	6	3	7¼	66	14·	·4

V. CONSTRUCTION OF DIETARIES.

Principles.

Principles
of construc-
tion of
dietaries.

On proceeding to construct dietaries for use in workhouses, it will be convenient to recapitulate, in the briefest possible manner, the principles which must guide us.

1. The foods to be selected shall be those in ordinary use, and shall constitute such a mixed dietary of animal and vegetable products as is commonly met with in the dietaries of the working classes, and has been found needful to maintain health.
2. The aim shall be to obtain the largest amount of nutriment at the least cost, having due regard to the digestibility of the foods and the tastes of the people to be fed.
3. Bread prepared from seconds flour being now the cheapest kind of food should be employed as largely as possible, whilst meat and other expensive foods should be strictly limited to the necessities of the inmates.
4. Potatoes and other garden vegetables being expensive foods when purchased, should constitute an essential part of the dietary only to the extent to which they are necessary to health, but as they are cheap foods when grown on the premises by workhouse labour, and their nutritive value can be compared with that of bread, their use should then be extended, and that of bread proportionately restricted.
5. The food to be supplied to infants under nine months of age should be milk alone, and throughout childhood and youth the quantity of food should be abundant so as to maintain growth.
6. Able-bodied adults should be fed upon a sufficient quantity of bread and the coarser kinds of food.
7. The aged and infirm and lunatics should have food easy of digestion, and also certain luxuries which are indeed now regarded almost universally as necessities by labourers' families at their own homes.
8. Suckling women should have abundant food.
9. The sick should be dieted under the direction of the medical officer, but certain general diets should be prepared.
10. Vagrants should not have more food given to them than will suffice to maintain them during their nightly sojourn.
11. In the summer season a portion of cabbage, carrots, parsnips, and other green vegetables should be given with half the prescribed quantity of potato once or twice a week if possible, and rhubarb, apple, gooseberries, and similar foods should be made into pies or puddings in lieu of suet-puddings, or given as a sauce with suet-puddings, so far as the supply from the workhouse garden will allow. 1 lb. of potatoes is equal in nutriment to about 2 lbs. of green vegetables.
12. The meat should be given when fresh to the utmost possible extent; and at least one roast meat dinner should be given weekly. Bacon may occasionally be substituted for meat.
13. As no class of the community takes the same rotation of foods week by week, and month by month, it is advisable that the rotation in workhouses should be changed at intervals, so that the same day shall not always be associated with the same kind of food, except that at all times there should be roast meat or baked meat-pie on Sundays. Peasoup should be substituted by other kinds of soup in summer. Potatoes should be roasted or baked sometimes in the winter.

VI. PREPARATION OF FOODS.

*Gruel, Milk Gruel, and Milk Porridge.**Gruel.*

Gruel.

For a pint (*Carbon 366 grains. Nitrogen 13 grains) :—
Oatmeal $1\frac{1}{2}$ oz. Suet $\frac{1}{8}$ oz. Treacle $\frac{1}{2}$ oz. Salt. Allspice by way of change.

Milk Gruel.

Milk gruel.

To make 1 pint (Carbon 442 grains. Nitrogen 27 grains) :—
Oatmeal $1\frac{1}{2}$ oz. Suet $\frac{1}{8}$ oz. Skim milk $\frac{1}{3}$ pint. Water $\frac{2}{3}$ pint. Salt. Allspice by way of change.

Milk Porridge.

Milk porridge.

To make one pint (Carbon 587 grains. Nitrogen 42 grains) :—
Oatmeal $1\frac{1}{2}$ oz. Milk $\frac{2}{3}$ pint. Water $\frac{1}{3}$ pint. Suet $\frac{1}{8}$ oz.

1. The roughly ground oatmeal is to be preferred, and it must be well cooked. Sweet gruel.
2. The finely chopped suet should be added early and the treacle late in the cooking.
3. Add the milk after the oatmeal has been well cooked.

Suet Pudding.

Suet pudding.

For 1 lb. (Carbon 1,590 grains. Nitrogen 66 grains) :—
Flour 7 oz. Suet $1\frac{1}{4}$ oz. Skimmed milk 2 oz. Water. Salt.

1. The consistence should be moderately stiff, neither too thick to be dry, nor too thin to be weak in nutriment.
2. The suet should be of beef if possible, and cut into moderately small pieces, and distributed evenly throughout the pudding.
3. Serve it with treacle and vinegar dip, or sometimes with browned, well seasoned meat liquor or gravy.
4. Sometimes add currants instead of the milk.

Rice Pudding.

Rice pudding.

(1) To make 1 pint (Carbon 1,287 grains. Nitrogen 37 grains) :—
Rice $3\frac{1}{2}$ oz. Suet $\frac{1}{2}$ oz. Sugar $\frac{1}{2}$ oz. Skimmed milk $\frac{1}{2}$ pint. Salt. Allspice.

(2) To make 100 pints (Carbon per pint 1,000 grains. Nitrogen 30 grains) :—

Rice 9 lbs. New milk 40 pints. Sugar $3\frac{1}{2}$ lbs. Dripping $3\frac{1}{2}$ lbs. Cinnamon or allspice. Salt.

1. As the inferior kinds of rice do not swell and thicken the food so much as the better kinds, it is better to mix them with a portion of broken Carolina or other of the superior kinds of rice.
2. The rice should be well creed, and sufficient time and fluid must be allowed. Common rice should be creed beforehand.
3. The consistence should be thick but soft.
4. Mix the sugar and the spice in the milk and water so that they may be uniformly distributed throughout the pudding.
5. The suet will rise to the surface of the pudding, and therefore in the distribution mix the pudding well, so as to give a portion of the fat to each person.
6. Distribute it by measure.

* These statements show the nutritive values of the various foods stated chemically.

Rice Milk.

Rice milk.

For 100 pints, Rice 12 lbs. New milk 50 pints. Sugar 3 lbs.

1. The rice must be creed before it is added to the milk.
2. Flavour the food agreeably with salt and allspice.
3. When skimmed milk is used instead of new milk, add $\frac{1}{4}$ oz. of suet to each pint and dissolve.

Soup.

Soup.

(1) For 1 pint (Carbon 1,048 grains. Nitrogen 83 grains):—
 Meat 3 oz. Bones 1 oz. Meat liquor. Split peas, 2 oz. Oatmeal $\frac{1}{2}$ oz. Potatoes 2 oz. Carrots, onions, or leeks, 1 oz. Pepper. Salt. Mint, thyme, or rosemary.

(2) For 1 pint (Carbon 1,039 grains. Nitrogen 44 grains):—
 Meat 2 oz. Bone $2\frac{1}{4}$ oz. Meat liquor. Pearl barley 2 oz. Rice 1 oz. Oatmeal $\frac{1}{2}$ oz. Carrots 1 oz. Pepper. Salt. Dried herbs.

(3) For 1 pint (Carbon 1,029 grains. Nitrogen 60 grains):—
 Meat (leg of beef or oxhead) 2 oz. Bones 3 oz. Barley 1 oz. Split peas 1 oz. Onions 1 oz. Carrots 2 oz. Oatmeal 1 oz. Burnt raw sugar ($\frac{1}{2}$ lb. in 100 pints). Pepper. Salt. Dried herbs.

(4) For 100 pints. Per pint (Carbon 947 grains. Nitrogen 58 grains):—

Beef $21\frac{1}{2}$ lbs. Peas $5\frac{3}{4}$ lbs. Oatmeal (coarse) $2\frac{1}{3}$ lbs. Pearl barley $6\frac{1}{3}$ lbs. Carrots $1\frac{3}{4}$ lb. Onions and leeks $1\frac{1}{4}$ lb. Celery 1 stick. Parsley $\frac{1}{2}$ lb. Thyme. Salt $1\frac{1}{2}$ lb. Burnt brown sugar $\frac{1}{2}$ lb. Pepper $1\frac{1}{2}$ oz.

In the preparation of soup the following directions should be observed:—

1. Saw the bones into small pieces, and boil them in a digester, or in a boiler for 12 hours. If they are broken, take care that all the small splinters are picked out.
2. Cut the meat into portions about one inch square, and simmer it in the meat liquor of the previous day until it is tender and nearly cooked. The temperature should not exceed 180° .
3. Soak the peas, barley, and rice for some hours in water.
4. Crush the carrots or cut them into small pieces.
5. Boil the vegetables (peas, &c.) gently in meat and bone liquor until nearly cooked, and then add the meat and the remaining meat liquor and boil until ready for use.
6. At the last add the pepper, salt, and dried herbs, and stir well.
7. Take care not to cook any part of the ingredients so thoroughly that they shall not be perceptible in the soup.
8. Take pains to make it of an agreeable flavour by salt and herbs, and vary the flavour by different kinds of dried herbs from time to time.
9. In serving it be careful to keep the mess well stirred, so as to allow of the meat being fairly distributed to each person.
10. Split peas should always be used, but if whole peas, they should be ground roughly before being used, or the shells should be sieved out and not eaten.

Broth.

Broth.

For 1 pint (Carbon 472 grains. Nitrogen 18 grains):—

Meat liquor 1 pint. Barley 2 oz. Leeks 2 oz. (or onions 1 oz.)
 Oatmeal $\frac{1}{2}$ oz. Parsley. Salt. Pepper.

Potato Pie.

To make $3\frac{3}{4}$ lbs. (per $1\frac{1}{4}$ lbs. Carbon 1,227 grains. Nitrogen 80 grains) :— Potato pie.

For crust. Flour 12 oz. Lard or dripping $1\frac{1}{2}$ oz. Water $4\frac{1}{4}$ oz. Meat (beef and mutton, or beef and bacon mixed) 9 oz. Potatoes when peeled 30 oz. Onions $1\frac{1}{2}$ oz. Pepper and salt.

1. In order to keep the nutritive value of this food nearly uniform, let the consistence be stiff, and no more fluid be added to it during the cooking than is necessary to cook the ingredients properly.
2. When it is served, and after it has been weighed, add to each quantity a little *hot* meat liquor properly seasoned.
3. Take care that the crust is always made of an uniform thickness and dried in the baking to an uniform degree.
4. Cook both the crust and the inside well.
5. Cook the meat a little, and season it before it is put into the pie, and cook it with a very gentle heat and slowly.
6. If possible cook the meat in meat liquor, and make the pie with properly seasoned meat liquor and not with water.
7. Do not cut the potato into portions so small, that the whole will be mashed down.
8. Take pains to season and flavour it well and to distribute the seasoning equally over every part of the pie.
9. Use shallow dishes, so that the share of each person shall include a portion of the crust, and all the contents of the pie underneath it.
10. Ascertain how many rations a dish will hold, and in dividing the pie it will be unnecessary to delay time by weighing each portion.
11. The crust should be made with dripping when possible—either that from the roast meat, or a little skimmed off the meat liquor before vegetables have been added.

Hash or Irish Stew.

For 1 pint (Carbon 1,113 grains. Nitrogen 49 grains) :—

Meat (mutton or beef) 3 oz. Potatoes 12 oz. Onions $1\frac{1}{2}$ oz. Pepper. Salt. Meat liquor. Hash or
Irish stew.

For 100 pints. Per pint (Carbon 911 grains. Nitrogen 33 grains) :—
Beef $13\frac{1}{3}$ lbs. Onions 5 lbs. Carrots 5 lbs. Potatoes 117 lbs.

Pepper $1\frac{2}{3}$ oz. Salt $1\frac{2}{3}$ lb.

1. As it is possible to reduce the nutritive value of this food by adding water to it, it is understood that it shall be so thick that a spoon would stand upright in it.
2. The meat should be gently stewed and made tender, and well seasoned, before the vegetables are added to it.
3. Use mutton when possible, but take care that it is not too fat.
4. If possible both the meat and the vegetables should be cooked in meat liquor.
5. Take care that all the potato is cooked equally, but not so thoroughly that it shall be entirely mashed.
6. Season and salt the food sufficiently and make the flavour agreeable.
7. Measure it in a pint vessel which is wider at the top than at the bottom, and take care that the meat is evenly distributed.

VII. PROPOSED DIETARIES.

INFANTS under 1 year of age.

Infants.

The mother's milk alone, if sufficient and good, should be given to infants under 9 months of age, and when insufficient, the defect should be supplied by sweetened new milk and water, in the proportion of three parts of milk to one of water, and given at a temperature as warm as that of the body.

When weaned, or entirely brought up by hand, three pints of the sweetened milk and water should be given in portions every two or three hours during the day, and once or twice during night. The temperature should not be much higher or lower than that of the body—say 96° to 100°.

	Carbon.		Nitrogen.
45 oz. new milk	- 1,228 grs.	-	98 grs.
1 oz. sugar -	- 175 „	-	—
	<u>1,403 „</u>		<u>98 „</u>

When new milk is quite unattainable skimmed milk should be used, and $\frac{1}{2}$ oz. of suet be well dissolved in each quart of milk.

After 9 months of age bread and flour may be added to the milk. Bread is to be preferred, and about 4 ounces per day allowed.

	Carbon.		Nitrogen.
Milk and sugar as above	1,403 grs.	-	98 grs.
4 oz. of bread -	- 498 „	-	22 „
	<u>1,901 „</u>		<u>120 „</u>

SUCKLING WOMEN after the 3d day.

Suckling women.

Breakfast.— $1\frac{1}{2}$ pint milk porridge, 6 oz. of bread, daily.

Supper.—The same.

Dinner.—Same as for aged and infirm, but with 1 oz. of bread additional.

The medical officer should order tea, &c. for supper, in lieu of the above, at his discretion.

	Carbon.		Nitrogen.
Breakfast {	Milk porridge $1\frac{1}{2}$	- 880 grs.	- 63 grs.
	Bread, 6 oz.	- 748 „	- 33 „
	<u>1,628 „</u>	-	<u>96 „</u>
Supper - - -	- 1,628 „	-	96 „
Dinner - - -	- 1,766 „	-	97 „
	<u>5,022 „</u>	-	<u>289 „</u>

VAGRANTS.

Men.

Supper.—Bread 8 oz., and in the winter 1 pt. of hot gruel or broth. Vagrants.
Breakfast.—Bread 8 oz.

Women and Children over 9 years of age.

Supper.—Bread 6 oz., 1 pint of gruel or broth.
Breakfast.—The same.

Children between 2 and 9 years.

Supper.—Bread 5 oz., $\frac{1}{2}$ pint of gruel or broth.
Breakfast.—The same.

Men.

	Carbon. Nitrogen.			Carbon. Nitrogen.	
	grs.	grs.		grs.	grs.
<i>Supper</i> , bread	997	50	In winter, gruel, 1 pt.	296	13
<i>Breakfast</i> , bread	997	50	„ bread	997	50
				<u>1,293</u>	<u>63</u>

Women.

	Carbon.			Nitrogen.	
<i>Supper</i> , bread	-	748 grs.	-	33 grs.	
Gruel	-	296 „	-	13 „	
		<u>1,044 „</u>		<u>46 „</u>	

Breakfast.—The same.



	Meal.	No. of Days weekly.	Gruel.	Milk Gruel.	Milk Porridge.	Bread.	Meat.	Potatoes.	Meat Pie.	Suet Pudding.	Rice Pudding.	Broth.	Soup.	Cheese.	Tea.	Sugar.	Butter.	Carbon.	Nitrogen.	Average.		Total Daily.			
																				Carbon.	Nitrogen.	Grains.	Grains.	Grains.	Grains.
Children, aged 1 to 3	Breakfast	-	-	-	$\frac{1}{2}$	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	668	38	2,579	106	
	Going to school	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	249	11			
	Supper	-	-	-	$\frac{1}{2}$	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	668	38			
	Dinner	-	-	-	-	3	-	-	-	-	$\frac{1}{2}$	-	-	-	-	-	-	-	-	-	794	29			
	"	-	-	-	-	4	-	-	-	-	-	$\frac{1}{2}$	-	-	-	-	-	-	-	-					-
" aged 3 to 5	Breakfast	-	-	-	$\frac{2}{3}$	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	939	54	3,182	158	
	Going to school	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	249	11			
	Supper	-	-	-	$\frac{2}{3}$	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	959	54			
	Dinner	-	-	-	-	2	2	6	8	-	-	-	-	-	-	-	-	-	-	-	955	39			
	"	-	-	-	-	2	4	-	-	-	-	$\frac{1}{2}$	-	-	-	-	-	-	-	-					-
" aged 5 to 9	Breakfast	-	-	-	$\frac{2}{3}$	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,189	65	3,584	193	
	Supper	-	-	-	$\frac{2}{3}$	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,063	59			
	Dinner	-	-	-	-	3	2	8	12	-	-	-	1	-	-	-	-	-	-	-	1,369	32			
	"	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-
	"	-	-	-	-	3	-	-	-	-	-	$\frac{1}{2}$	-	-	-	-	-	-	-	-					-
" aged 9 to 15	Breakfast	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,188	60	4,031	208	
	Supper	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,188	60			
	Dinner	-	-	-	-	4	3	8	12	-	-	-	1	-	-	-	-	-	-	-	1,655	88			
	"	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-
	"	-	-	-	-	4	-	-	-	-	10	-	-	-	1	-	-	-	-	-					-

* This may be given at the breakfast hour and retained until the school hour.

	Meal.	No. of Days weekly.	Gruel.	Milk Gruel.	Milk Porridge.	Bread.	Milk.	Meat.	Potatoes.	Meat Pie.	Suet Pudding.	Rice Pudding.	Broth.	Soup.	Cheese.	Tea.	Sugar.	Butter.	Carbon.	Nitrogen.	Average.		Total Daily.		
																					Grains.	Grains.	Carbon.	Nitrogen.	
																									Grains.
Adult Able-bodied Men.	Breakfast -	7	1½	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	1,296	-	-
	Supper -	4	1½	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	1,296	53	1,262	53	1,296	
	" -	3	-	-	-	8	-	-	-	-	-	-	1	-	1½	-	-	-	-	1,689	96	1,262	64	1,262	
	Dinner -	2	-	-	-	8	-	-	-	16	-	-	1	-	1½	-	-	-	-	1,689	96	1,839	95	1,839	
	" -	1	-	-	-	4	-	-	-	-	-	-	-	1	-	-	-	-	-	1,976	91	1,839	95	1,839	
" -	"	2	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	1,796	111	1,839	95	1,839		
" -	"	2	-	-	-	4	-	-	-	-	10	-	1	-	-	-	-	-	1,963	81	1,839	95	1,839		
" Women	Breakfast -	7	1	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	1,113	-	-
	Supper -	6	1	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	1,113	46	1,101	45	1,101	
	" -	1	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	1,032	39	1,101	45	1,101	
	Dinner -	2	-	-	-	6	-	-	-	-	-	-	1	-	1½	-	-	-	-	1,439	84	1,040	86	1,040	
	" -	2	-	-	-	4	-	-	10	-	-	-	-	-	-	-	-	-	-	1,745	81	1,040	86	1,040	
" -	"	2	-	-	5	-	-	-	-	-	8	-	1	-	-	-	-	-	1,671	101	1,040	86	1,040		
" -	"	1	-	-	4	-	-	-	-	-	-	-	1	-	-	-	-	-	1,764	73	1,040	86	1,040		
Aged and Infirm Men	Breakfast -	7	-	1½	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74	1,409	-	-
	Supper -	3	-	1½	-	6	-	-	-	-	-	-	-	-	-	1	-	-	-	1,032	39	1,203	60	1,203	
	" -	2	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	1,409	74	1,203	60	1,203	
	" -	2	-	-	-	6	-	-	-	-	-	-	-	-	1½	-	-	-	-	1,255	77	1,203	60	1,203	
	Dinner -	4	-	-	-	4	-	-	10	-	-	-	-	-	-	-	-	-	-	1,745	81	1,751	91	1,751	
" -	"	1	-	-	3	-	-	-	16	-	-	-	-	1	1	-	-	-	1,821	92	1,751	91	1,751		
" -	"	1	-	-	5	-	-	-	-	-	-	-	-	-	1	-	-	-	1,817	138	1,751	91	1,751		
" -	"	1	-	-	4	-	-	-	-	-	10	-	-	-	1	-	-	-	1,637	86	1,751	91	1,751		
" Women	Breakfast -	7	-	1	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	1,188	-	-
	Supper -	7	-	-	-	6	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	39	1,032	-	-
	" -	4	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1,621	76	1,032	86	1,032	
	" -	1	-	-	-	2	-	-	-	16	-	-	-	-	1	1	-	-	-	1,693	87	1,032	86	1,032	
	" -	1	-	-	-	4	-	-	-	-	-	-	-	-	1	1	-	-	-	1,637	86	1,032	86	1,032	

* When on the ground of age not being sufficiently advanced it is not deemed proper to give tea for supper, the supper will consist of the same food as is prepared for the breakfast.

LONDON:
Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.

[.—350—4/67.]

